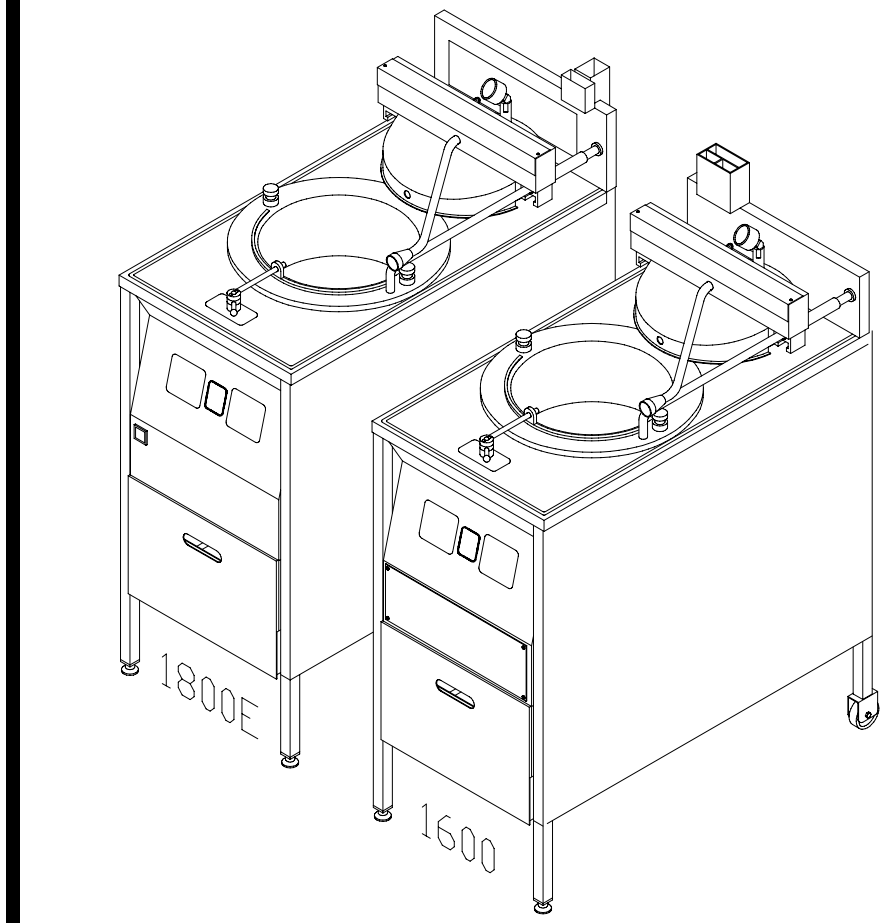
"An American Tradition Since 1954!"

MODEL 1600 AND 1800
BROASTER® PRESSURE FRYER
SERVICE MANUAL

Be sure ALL installers read, understand, and have access to this manual at all times.



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The Broaster Company
2855 Cranston Road, Beloit, WI 53511-3991
608/365-0193 - www.broaster.com

Design Certified By: **1600:** CSA, NSF and UL **1800:** CSA (AGA & CGA), NSF and UL
Printed in U.S.A.
14680 3/99 Rev. 9/08

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FOR YOUR SAFETY
Do not use or store gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

WARNING: Improper installation, adjustments, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

For the sake of safety and clarity, the following words used in this manual are defined as follows:

DANGER: Indicates an imminently hazardous situation which, if not avoided, could result in serious injury or death.

WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, could result in minor injury, property damage or both.

All adjustments and repairs shall be made by an authorized Broaster Company representative.

If there is a power failure, turn cook/filter switch OFF. On the Model 1800GH, also slide switch on gas valve OFF. DO NOT attempt to operate unit during a power failure.

1800GH: Post, in prominent locations, instructions to be followed in the event that the user smells gas. This information can be obtained from your local gas supplier.

WARNING: Failure to read and understand this manual completely could result in serious injury or death. Be sure ALL operators read, understand and have access to this manual at all times.

WARNING: *1600 Mechanical Controls:* If at any time the unit fails to operate properly when the cook/filter switch is moved to the cook position, contact your local Broaster Company representative for service immediately. *1600/1800E Solid State Controls:* If at any time the POWER ON light does not turn off when the cook/filter switch is moved to the OFF position, contact your local Broaster Company representative for service immediately.

WARNING: Rags or papers containing cooking oil can catch fire if exposed to heat. Laundering will not remove the oil. Dispose of all oil-soiled papers and rags in a trash container that is in a ventilated area away from all cooking equipment or other heat sources such as direct sunlight.

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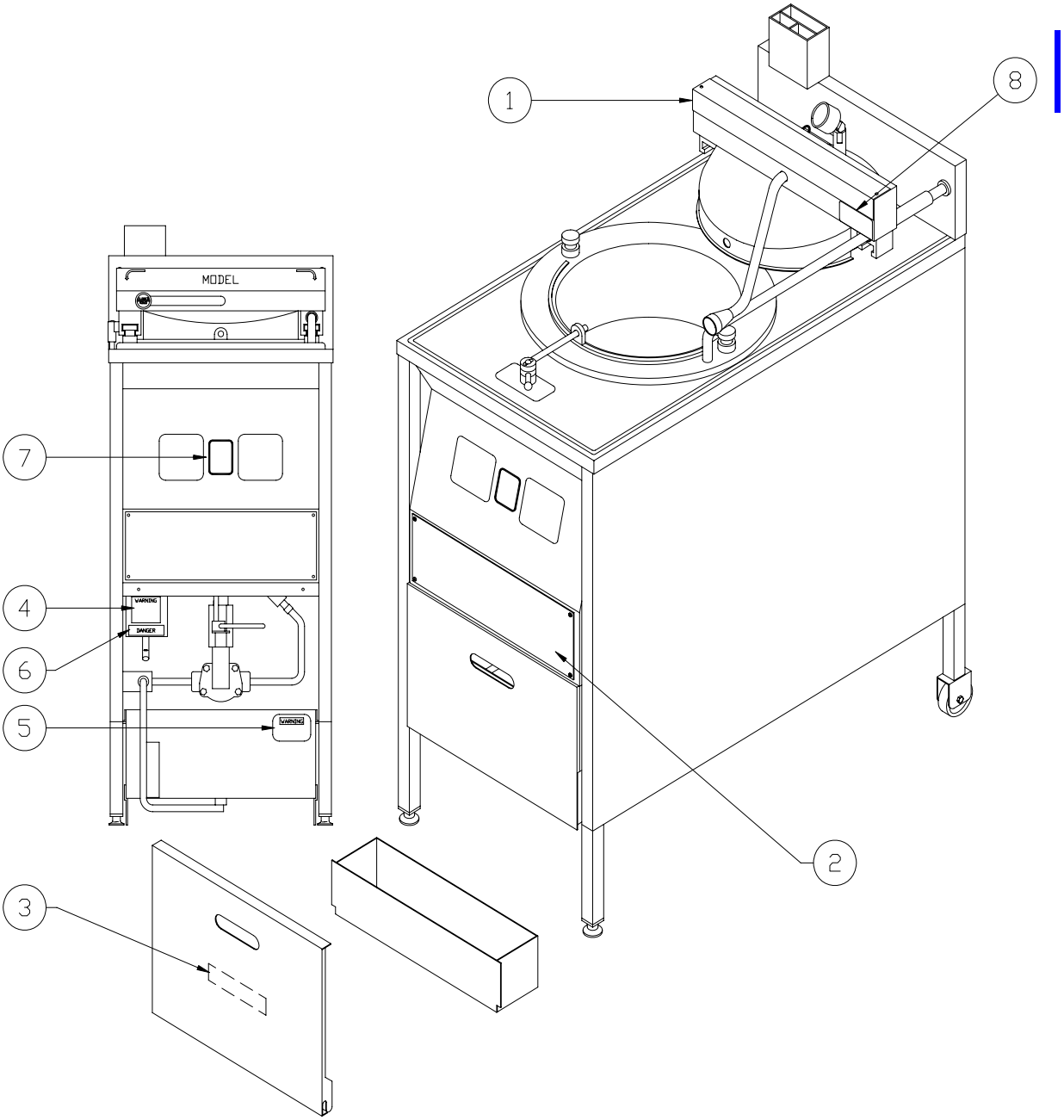
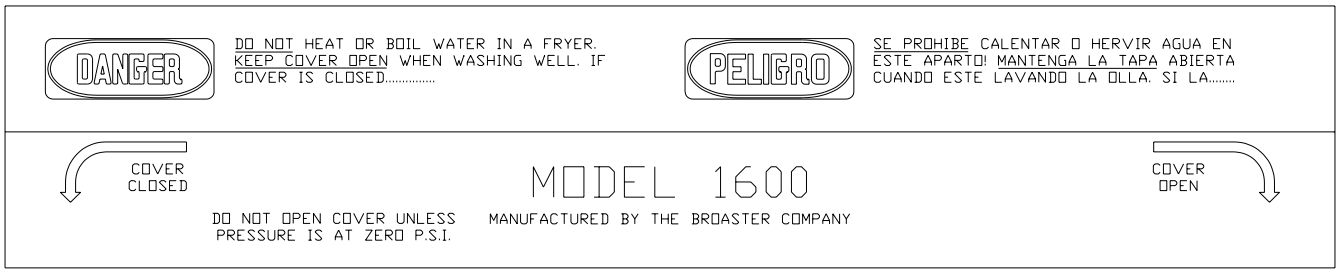
1 - WARNING SIGNS

When servicing a Broaster® Pressure Fryer, be sure all safety devices and warning signs are in place and legible. If not, The Broaster Company should be notified in writing of the lack of warning signs and the existence of an unsafe condition.

If you need replacement warning signs or manuals, contact an authorized Broaster Company representative or The Broaster Company Service Department at 608/365-0193.

1600:





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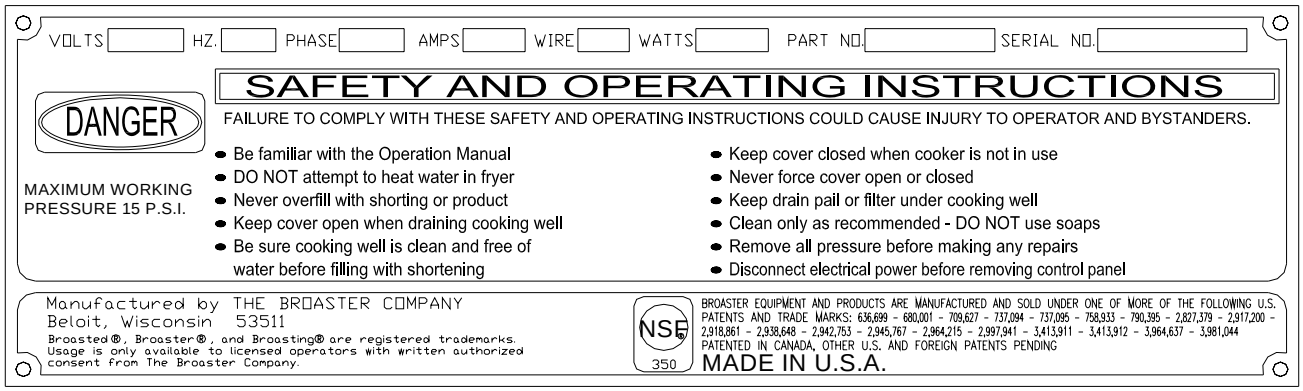
VOLTS
HZ.
PHASE
AMPS
WIRE
WATTS
PART NO.
SERIAL NO.
SAFETY AND OPERATING INSTRUCTIONS
DANGER
FAILURE TO COMPLY WITH THESE SAFETY AND OPERATING INSTRUCTIONS COULD CAUSE INJURY TO OPERATOR AND BYSTANDERS.
MAXIMUM WORKING
PRESSURE 15 P.S.I.
Be familiar with the Operation Manual
DO NOT attempt to heat water in fryer
Never overfill with shorting or product
Keep cover open when draining cooking well
Be sure cooking well is clean and free of
water before filling with shortening
Keep cover closed when cooker is not in use
Never force cover open or closed
Keep drain pail or filter under cooking well
Clean only as recommended - DO NOT use soaps
Remove all pressure before making any repairs
Disconnect electrical power before removing control panel
Manufactured by THE BROASTER COMPANY
Beloit, Wisconsin 53511
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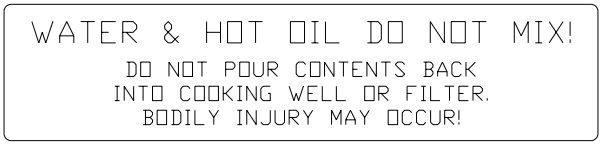
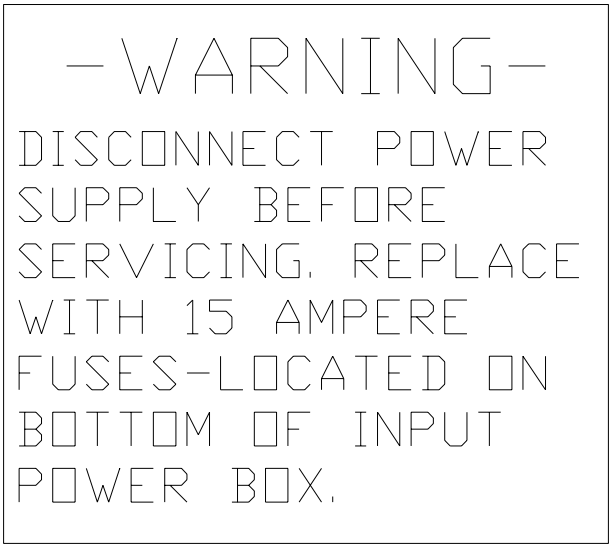
consent from The Broaster Company.
NSF
350
BROASTER EQUIPMENT AND PRODUCTS ARE MANUFACTURED AND SOLD UNDER ONE OF MORE OF THE FOLLOWING U.S.
PATENTS AND TRADE MARKS: 636,699 - 680,001 - 709,627 - 737,094 - 737,095 - 758,933 - 790,395 - 2,827,379 - 2,917,200 -
2,918,861 - 2,938,648 - 2,942,753 - 2,945,767 - 2,964,215 - 2,997,941 - 3,413,911 - 3,413,912 - 3,964,637 - 3,981,044
PATENTED IN CANADA, OTHER U.S. AND FOREIGN PATENTS PENDING
MADE IN U.S.A.

Item 2 - Part #11027



Item 3 - Part #10900

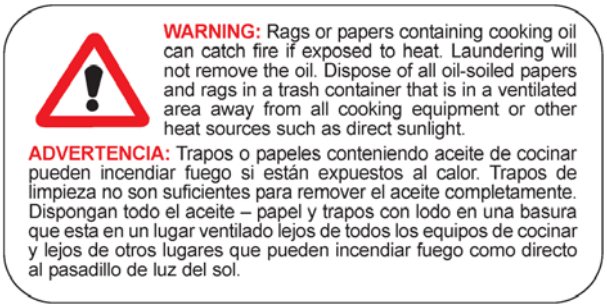


Item 4 - Part #11073

Item 5 - Part #11028

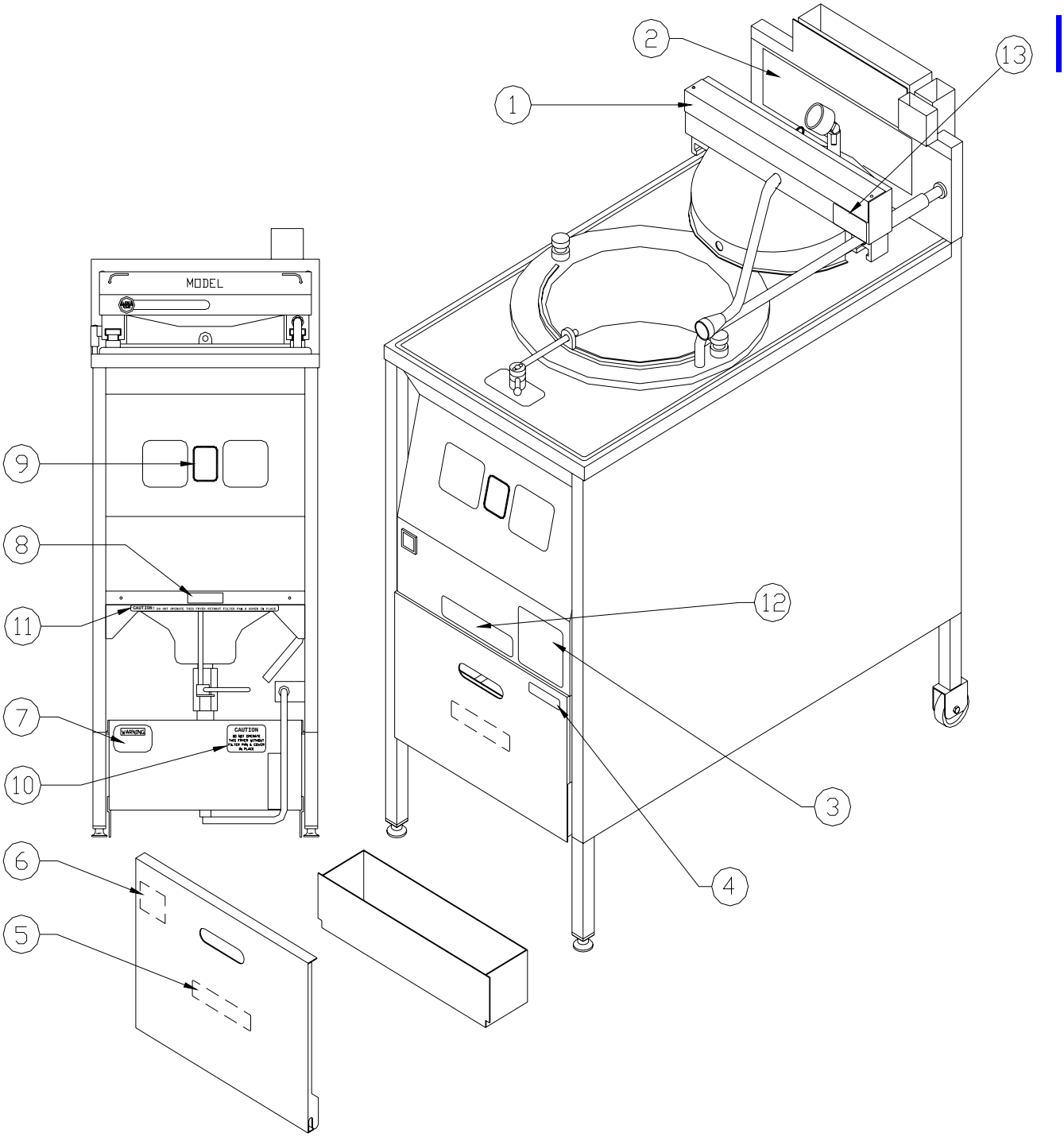
Item 6 - Part #06375

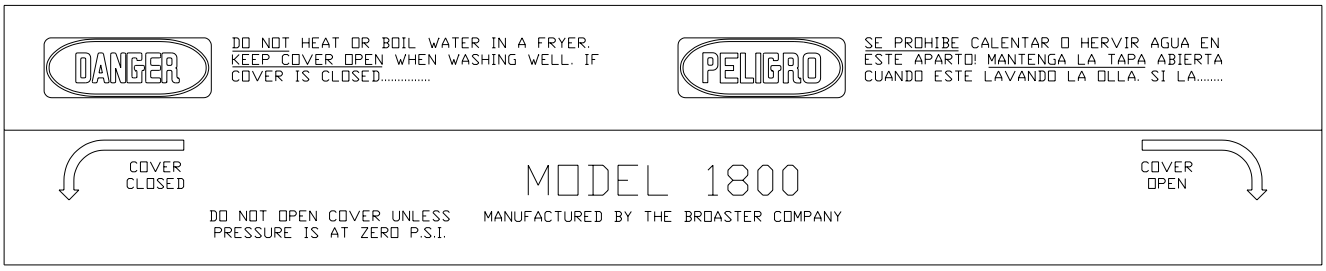
Item 7 - Part #14463


WARNING: Rags or papers containing cooking oil can catch fire if exposed to heat. Laundering will not remove the oil. Dispose of all oil-soiled papers and rags in a trash container that is in a ventilated area away from all cooking equipment or other heat sources such as direct sunlight.
ADVERTENCIA: Trapos o papeles conteniendo aceite de cocinar pueden incendiar fuego si están expuestos al calor. Trapos de limpieza no son suficientes para remover el aceite completamente. Dispongan todo el aceite – papel y trapos con lodo en una basura que esta en un lugar ventilado lejos de todos los equipos de cocinar y lejos de otros lugares que pueden incendiar fuego como directo al pasadillo de luz del sol.

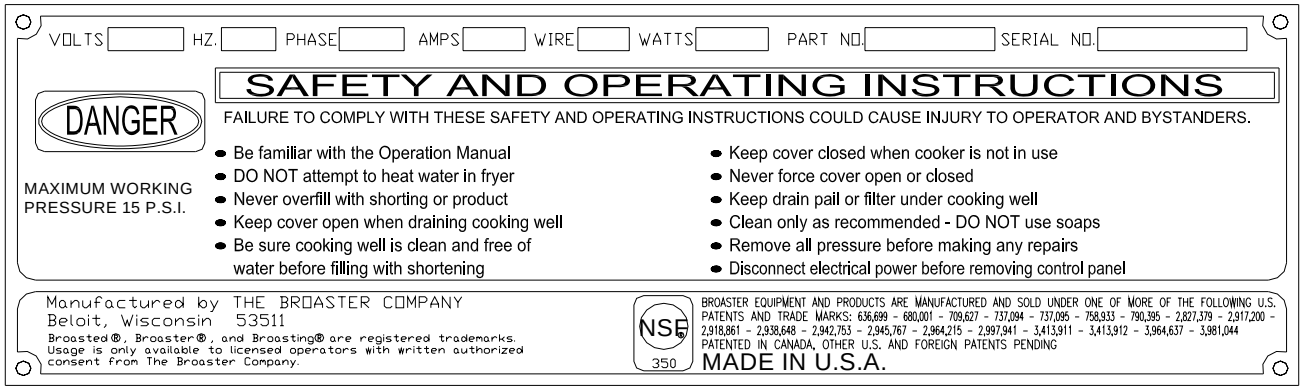
Item 8 - Part #16368

1800:




DANGER
DO NOT HEAT OR BOIL WATER IN A FRYER. KEEP COVER OPEN WHEN WASHING WELL. IF COVER IS CLOSED.....
PELIGRO
SE PROHIBE CALENTAR O HERVIR AGUA EN ESTE APARTO! MANTENGA LA TAPA ABIERTA CUANDO ESTE LAVANDO LA OLLA. SI LA.....
COVER CLOSED
MODEL 1800
COVER OPEN
DO NOT OPEN COVER UNLESS PRESSURE IS AT ZERO P.S.I.
MANUFACTURED BY THE BROASTER COMPANY

Item 1 - Part #10886


VOLTS HZ. PHASE AMPS WIRE WATTS PART NO. SERIAL NO.
SAFETY AND OPERATING INSTRUCTIONS
DANGER
FAILURE TO COMPLY WITH THESE SAFETY AND OPERATING INSTRUCTIONS COULD CAUSE INJURY TO OPERATOR AND BYSTANDERS.
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Keep drain pail or filter under cooking well
Clean only as recommended - DO NOT use soaps
Remove all pressure before making any repairs
Disconnect electrical power before removing control panel
Manufactured by THE BROASTER COMPANY
Beloit, Wisconsin 53511
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NSF 350
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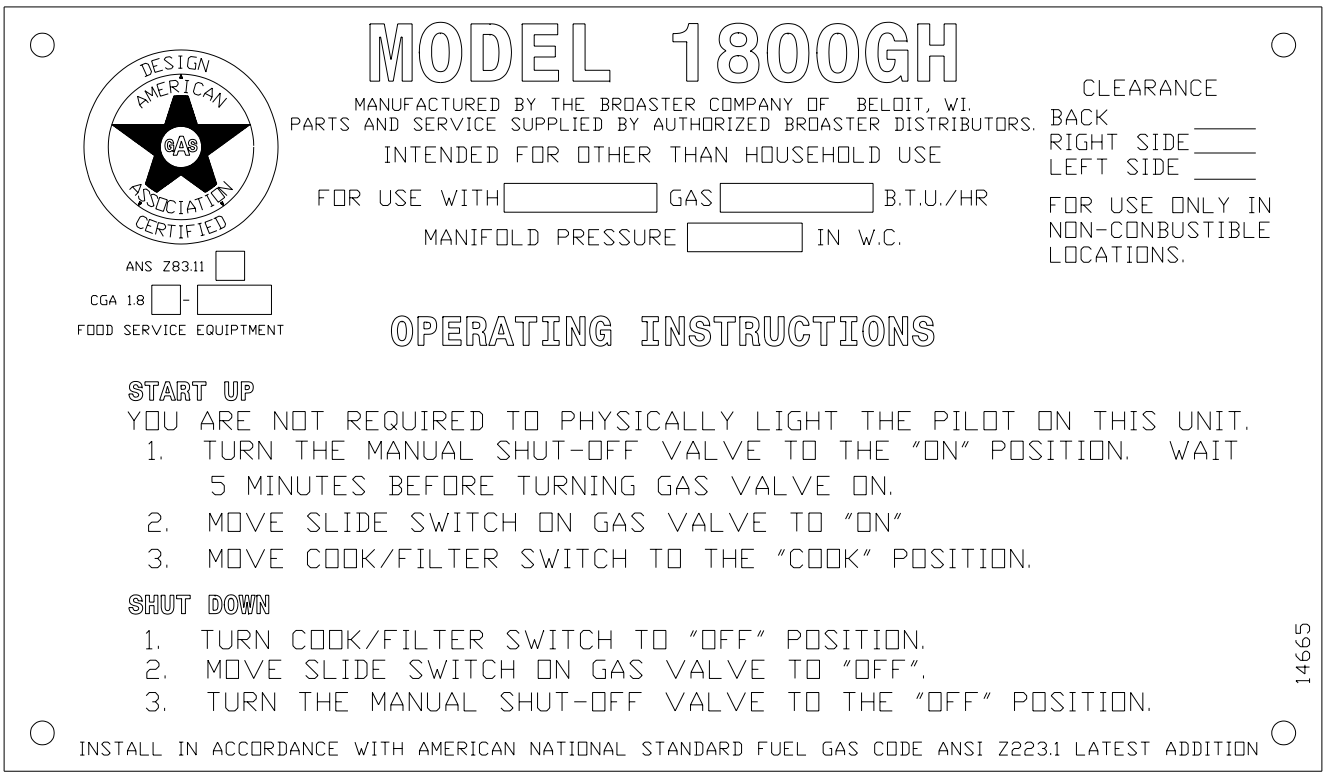
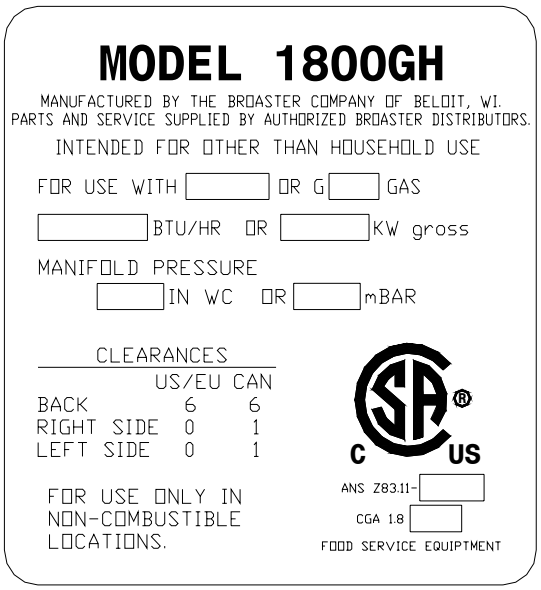
MADE IN U.S.A.

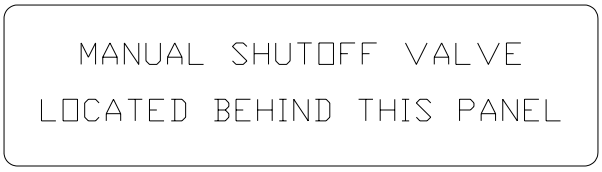
Item 2 - Part #11027


MODEL 1800GH
MANUFACTURED BY THE BROASTER COMPANY OF BELOIT, WI.
PARTS AND SERVICE SUPPLIED BY AUTHORIZED BROASTER DISTRIBUTORS.
INTENDED FOR OTHER THAN HOUSEHOLD USE
FOR USE WITH GAS B.T.U./HR
MANIFOLD PRESSURE IN W.C.
CLEARANCE
BACK
RIGHT SIDE
LEFT SIDE
FOR USE ONLY IN NON-CONBUSTIBLE LOCATIONS.
DESIGN AMERICAN GAS ASSOCIATION CERTIFIED
ANS Z83.11
CGA 1.8 -
FOOD SERVICE EQUIPTMENT
OPERATING INSTRUCTIONS
START UP
YOU ARE NOT REQUIRED TO PHYSICALLY LIGHT THE PILOT ON THIS UNIT.
1. TURN THE MANUAL SHUT-OFF VALVE TO THE "ON" POSITION. WAIT 5 MINUTES BEFORE TURNING GAS VALVE ON.
2. MOVE SLIDE SWITCH ON GAS VALVE TO "ON"
3. MOVE COOK/FILTER SWITCH TO THE "COOK" POSITION.
SHUT DOWN
1. TURN COOK/FILTER SWITCH TO "OFF" POSITION.
2. MOVE SLIDE SWITCH ON GAS VALVE TO "OFF".
3. TURN THE MANUAL SHUT-OFF VALVE TO THE "OFF" POSITION.
14665
INSTALL IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD FUEL GAS CODE ANSI Z223.1 LATEST ADDITION

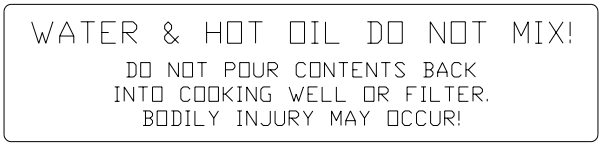
Item 3 - Part #14665 (1800GH Only)



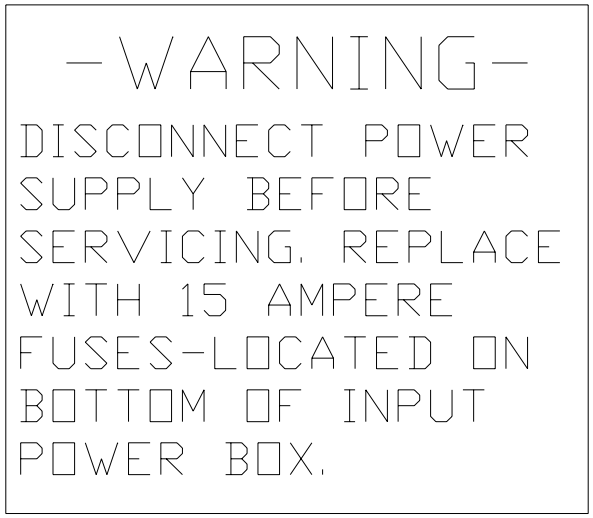
Item 3a - Part #15777 (1800GH after July 2003.



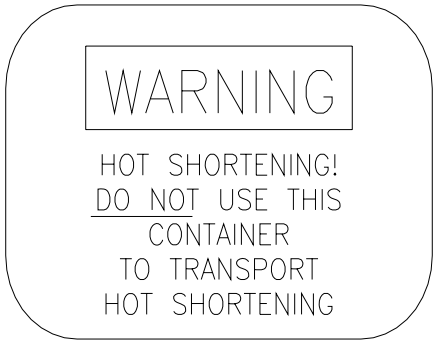
Item 4 - Part #11746 (1800GH Only)



Item 5 - Part #10900



Item 6 - Part #11073 (1800GH Only)



Item 7 - Part #11028

Item 8 - Part #06375

Item 9 - Part #14463

CAUTION

DO NOT OPERATE
THIS FRYER WITHOUT
FILTER PAN & CLEAN COVER
IN PLACE

Item 10 - Part #15725

CAUTION: DO NOT OPERATE THIS FRYER WITHOUT FILTER PAN & CLEAN COVER IN PLACE

Item 11 - Part #15785

APPLIANCE
TYPE: A

CATAGORY	COUNTRY
I_{2H}	-GB IE
I_{3P}	-GB IE

THIS APPLIANCE SHALL BE INSTALLED IN ACCORDANCE WITH CURRENT REGULATIONS AND USED ONLY IN A WELL-VENTILATED SPACE. REFER TO THE INSTRUCTIONS BEFORE INSTALLING AND USING THIS APPLIANCE.

Item 12 - Part #15846 (1800GHCE Only

WARNING: Rags or papers containing cooking oil can catch fire if exposed to heat. Laundering will not remove the oil. Dispose of all oil-soiled papers and rags in a trash container that is in a ventilated area away from all cooking equipment or other heat sources such as direct sunlight.

ADVERTENCIA: Trapos o papeles conteniendo aceite de cocinar pueden incendiar fuego si están expuestos al calor. Trapos de limpieza no son suficientes para remover el aceite completamente. Dispongan todo el aceite – papel y trapos con lodo en una basura que esta en un lugar ventilado lejos de todos los equipos de cocinar y lejos de otros lugares que pueden incendiar fuego como directo al pasadillo de luz del sol.

Item 8 - Part #16368

2 - ELECTRIC POWER SUPPLY

DANGER: Many sections in this manual pertain to checking and repairing electrical components. **High voltage** will be encountered in several instances. Only persons trained and equipped for checking high voltage shall undertake such repairs.

If no component operates, check main power supply. Be sure main circuit breaker is ON and main fuses are good.

Correct voltage will be either 208 or 240V.

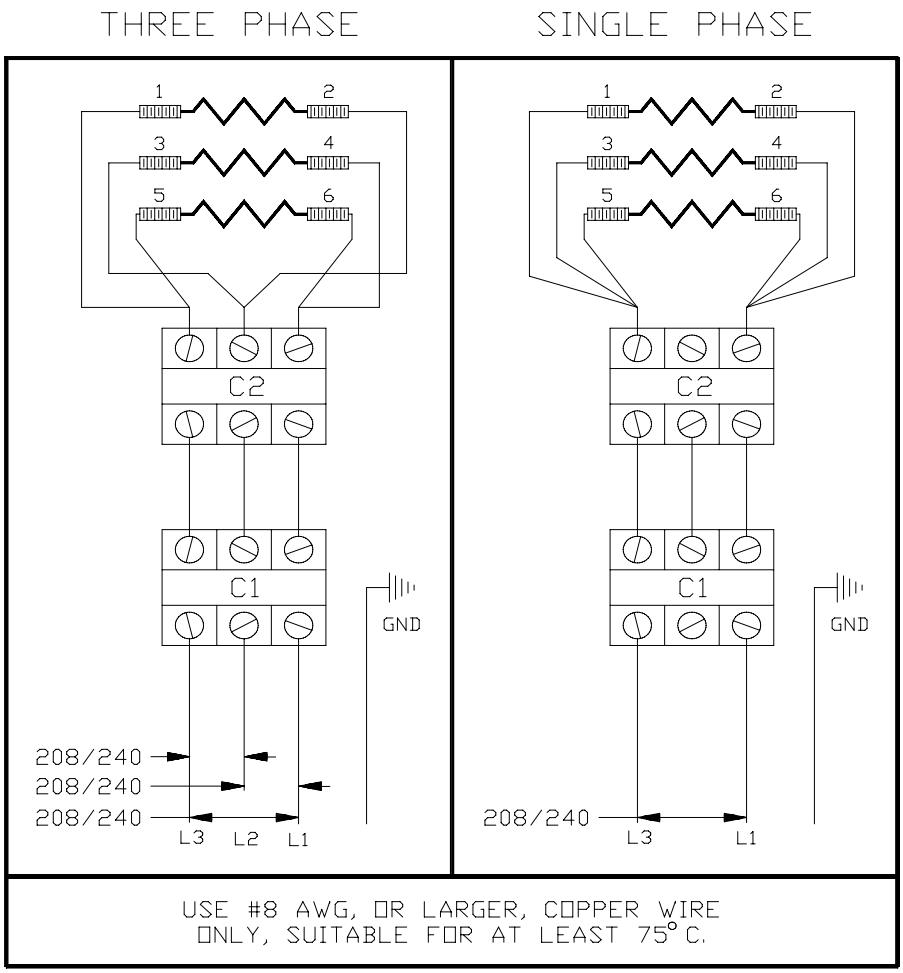
Perform the following if unit will not turn on:

1. Disconnect main power supply.
2. Be sure all connections are tight. If power supply is proper, see TROUBLESHOOTING section.

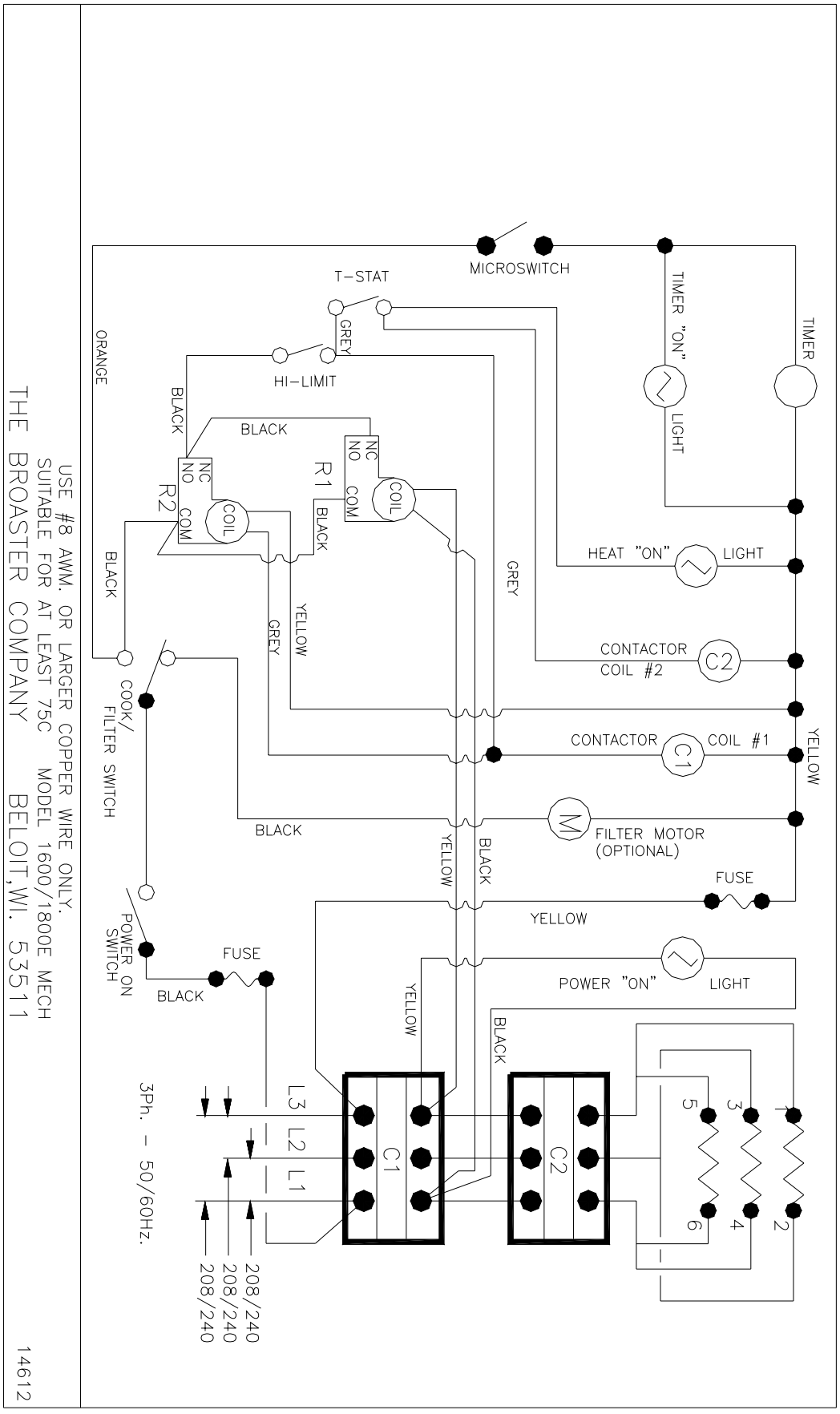
Wiring diagrams are located on inside front panel.

WIRING DIAGRAMS

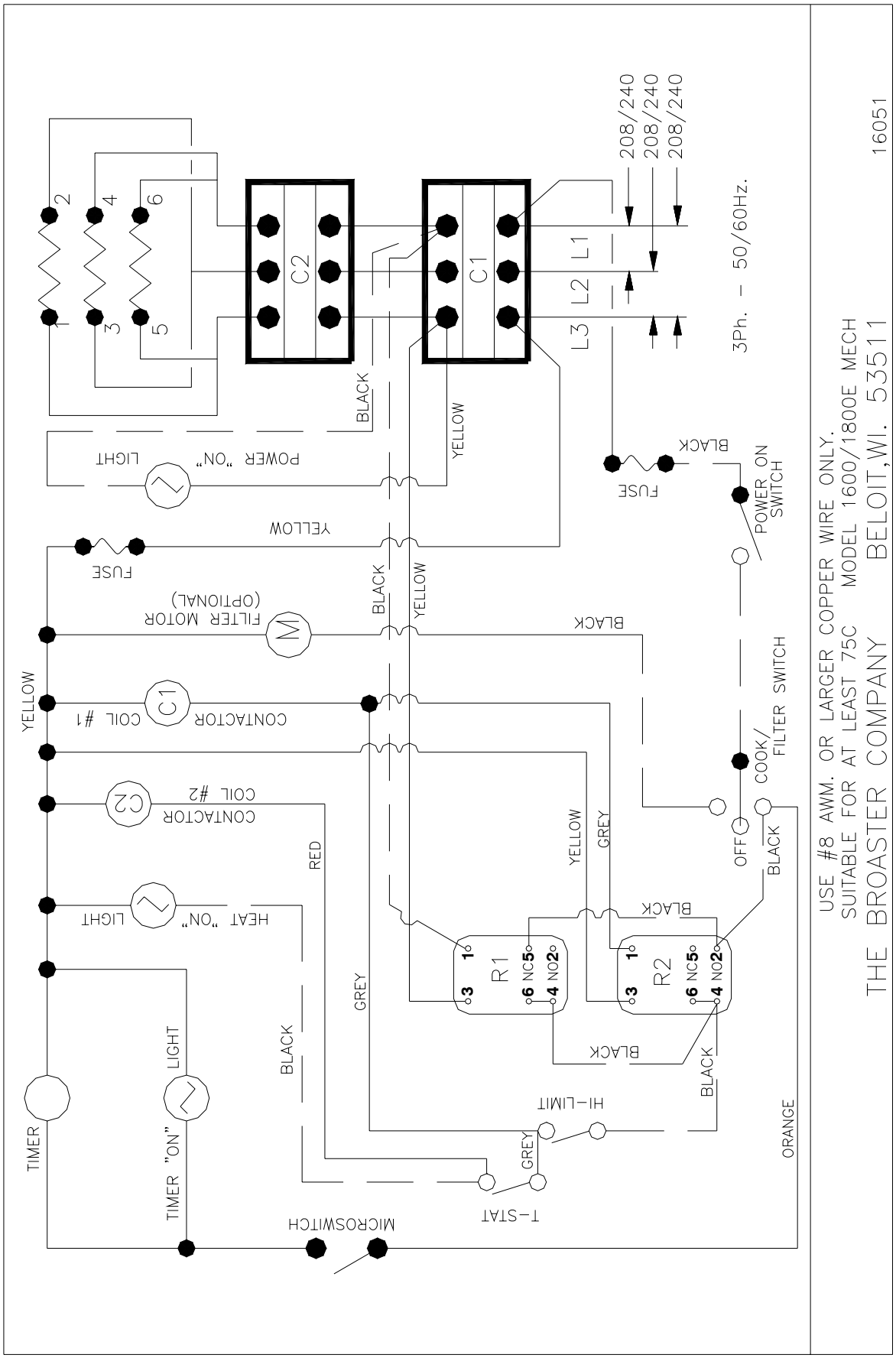
Three and Single Phase Wiring:



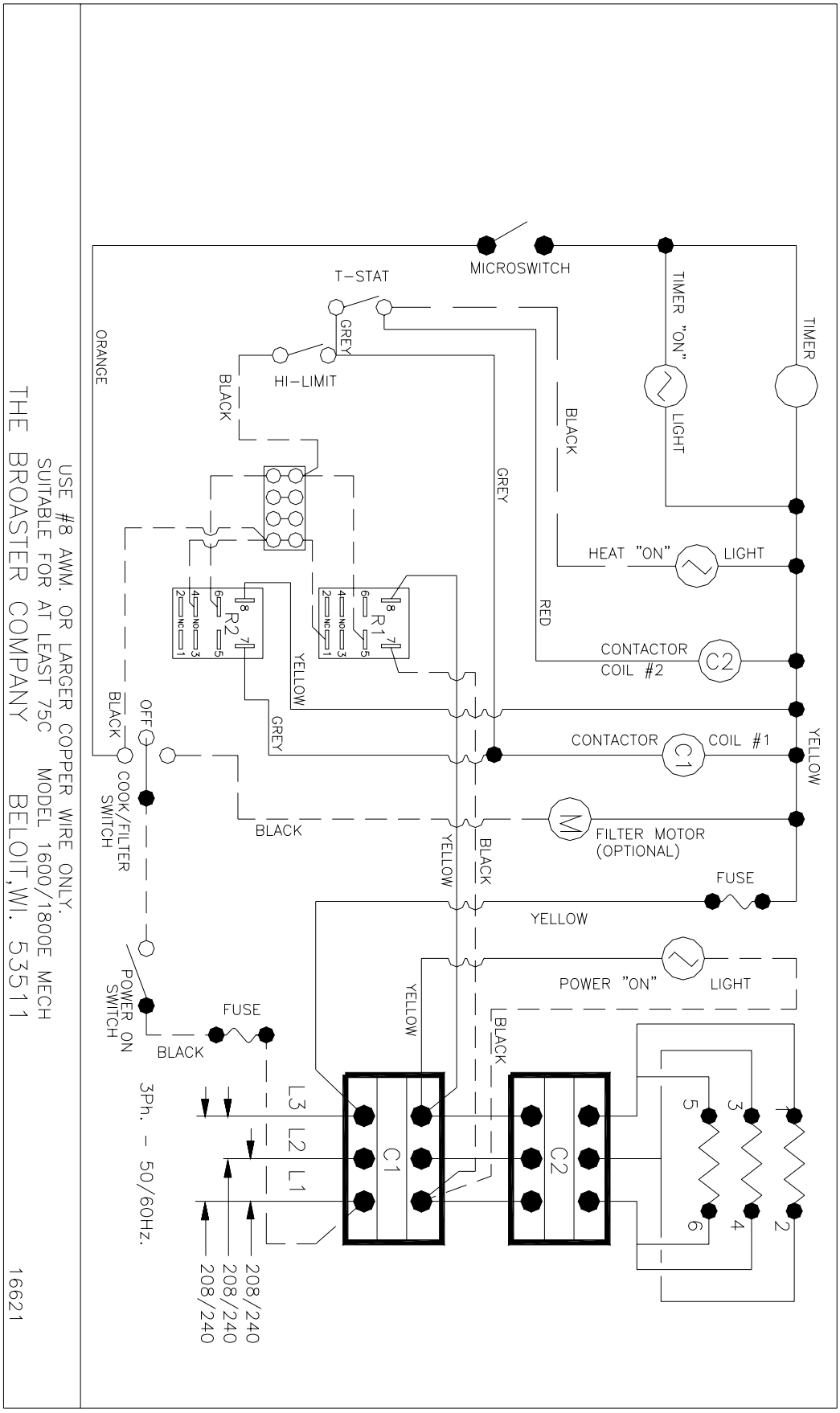
1600 Mechanical 208 or 240VAC:



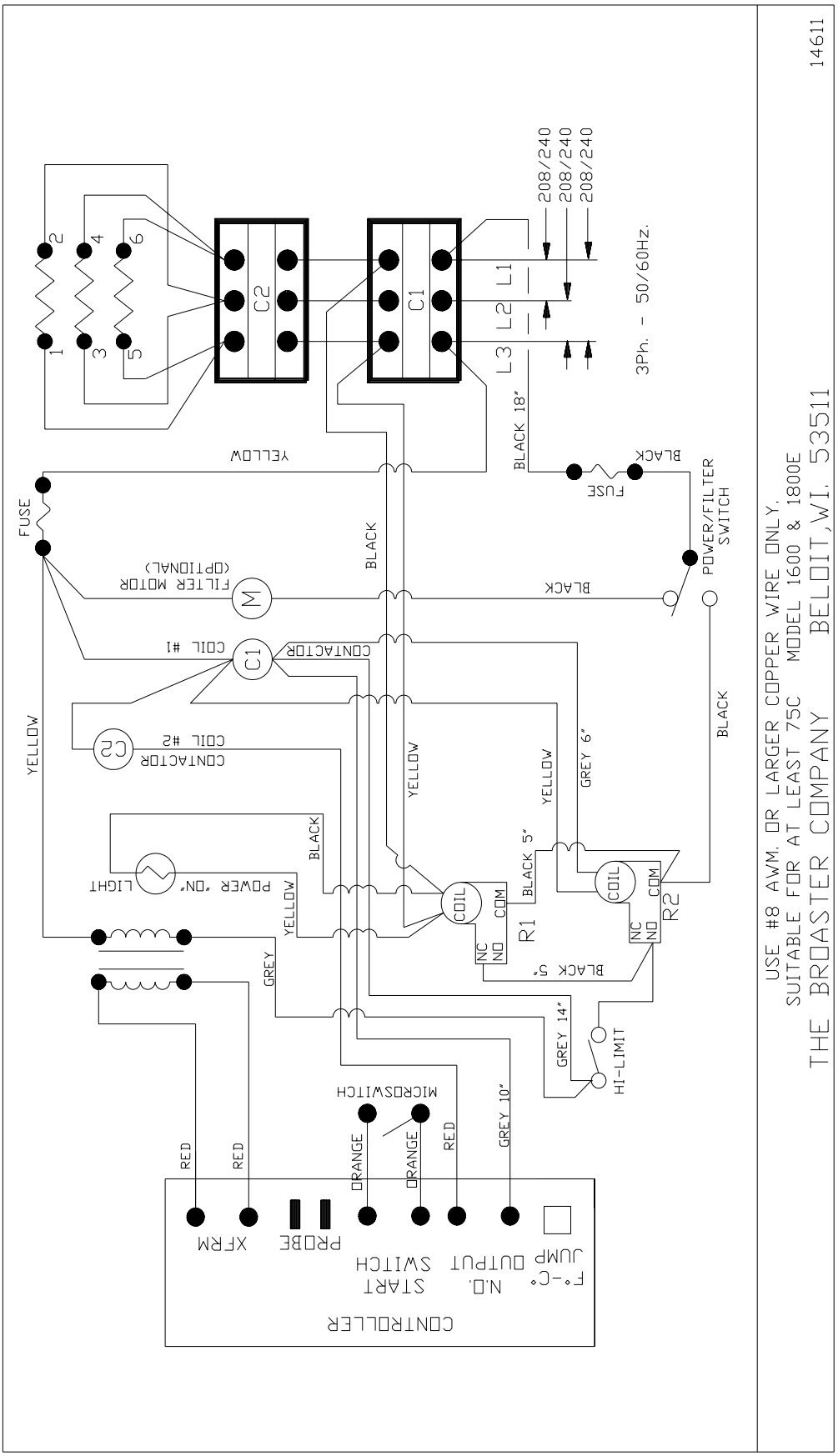
1600 Mechanical 208 or 240VAC: Effective E16E401073
E18C401133

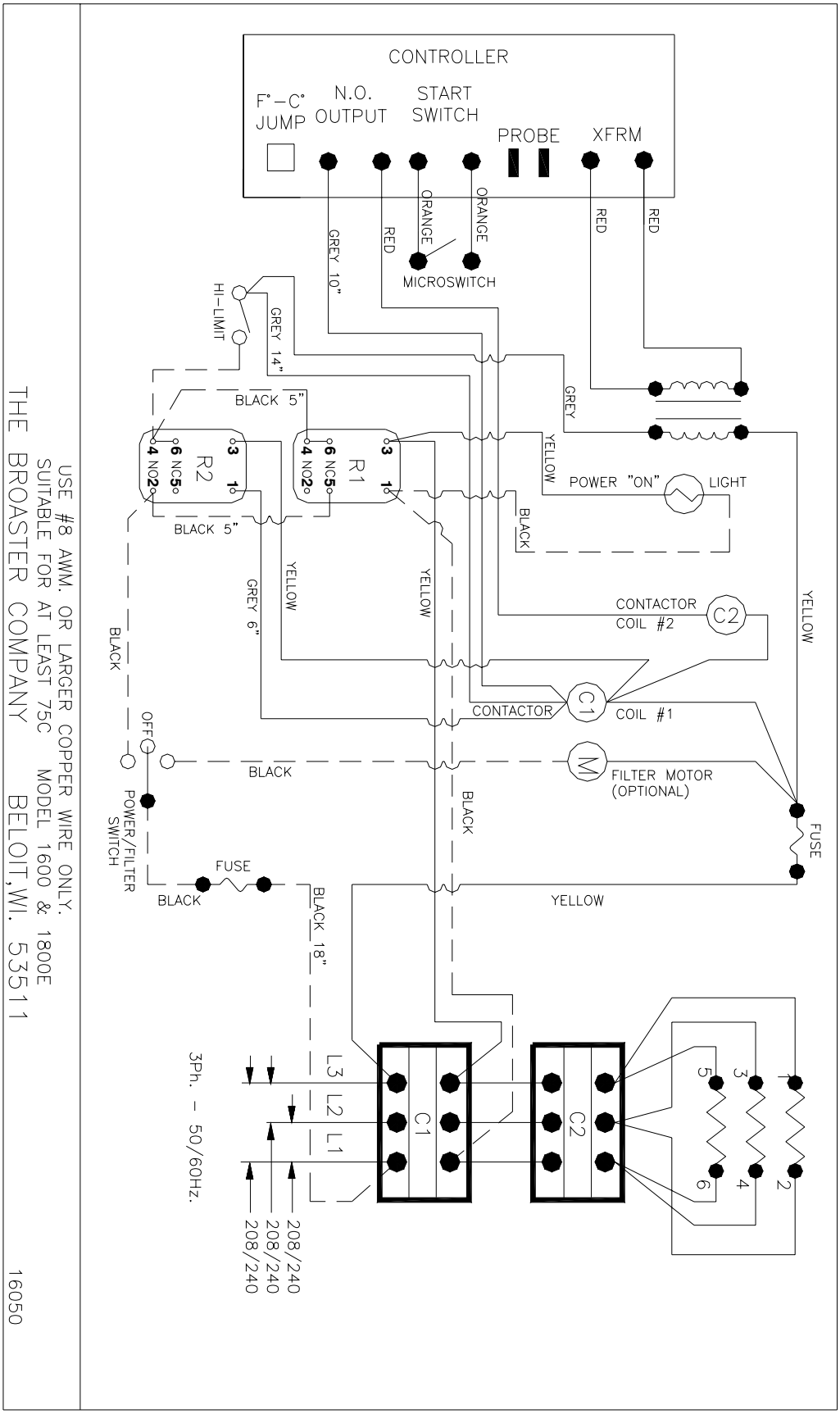


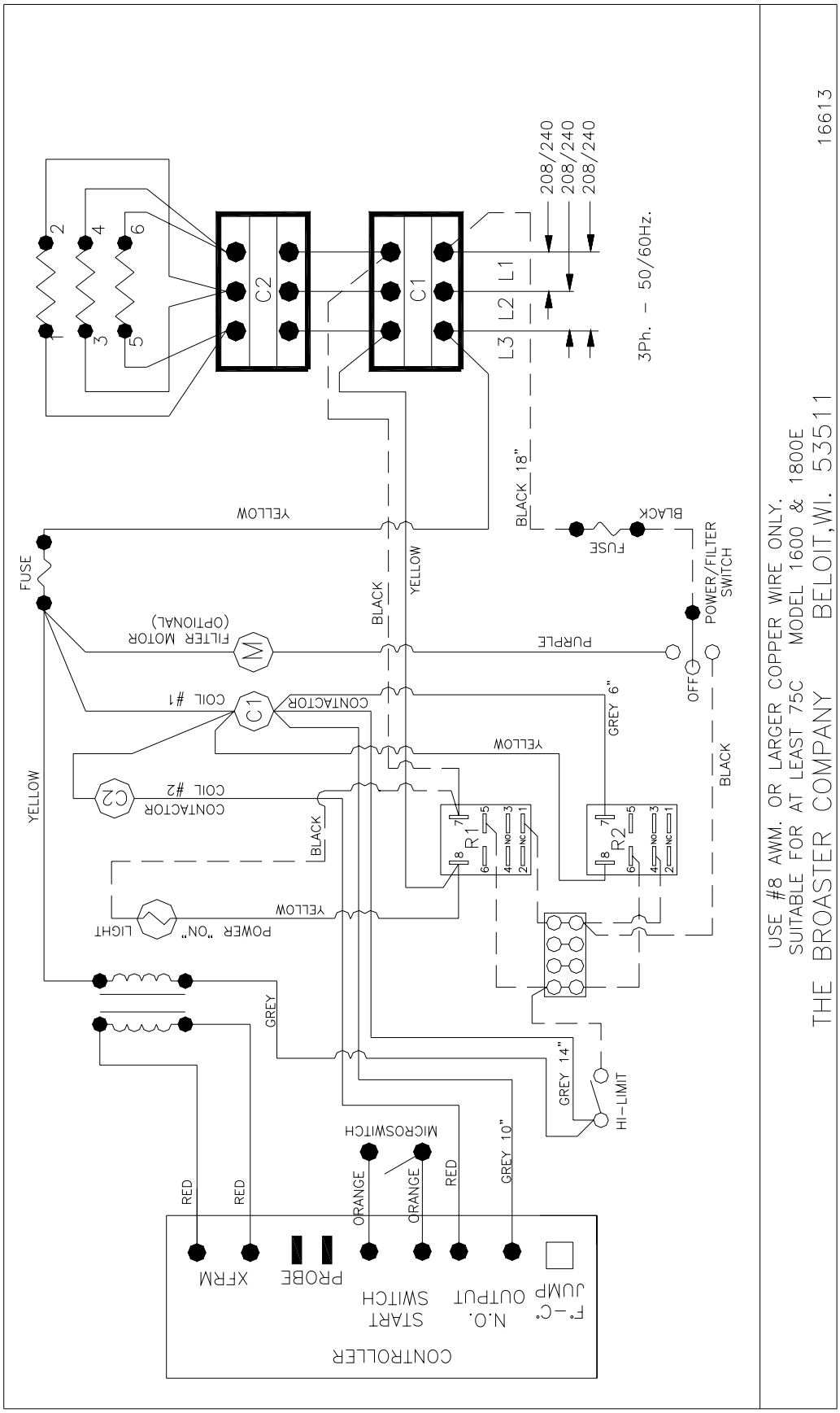
1600 Mechanical 208 or 240VAC: Effective E16A700023
E18A700043



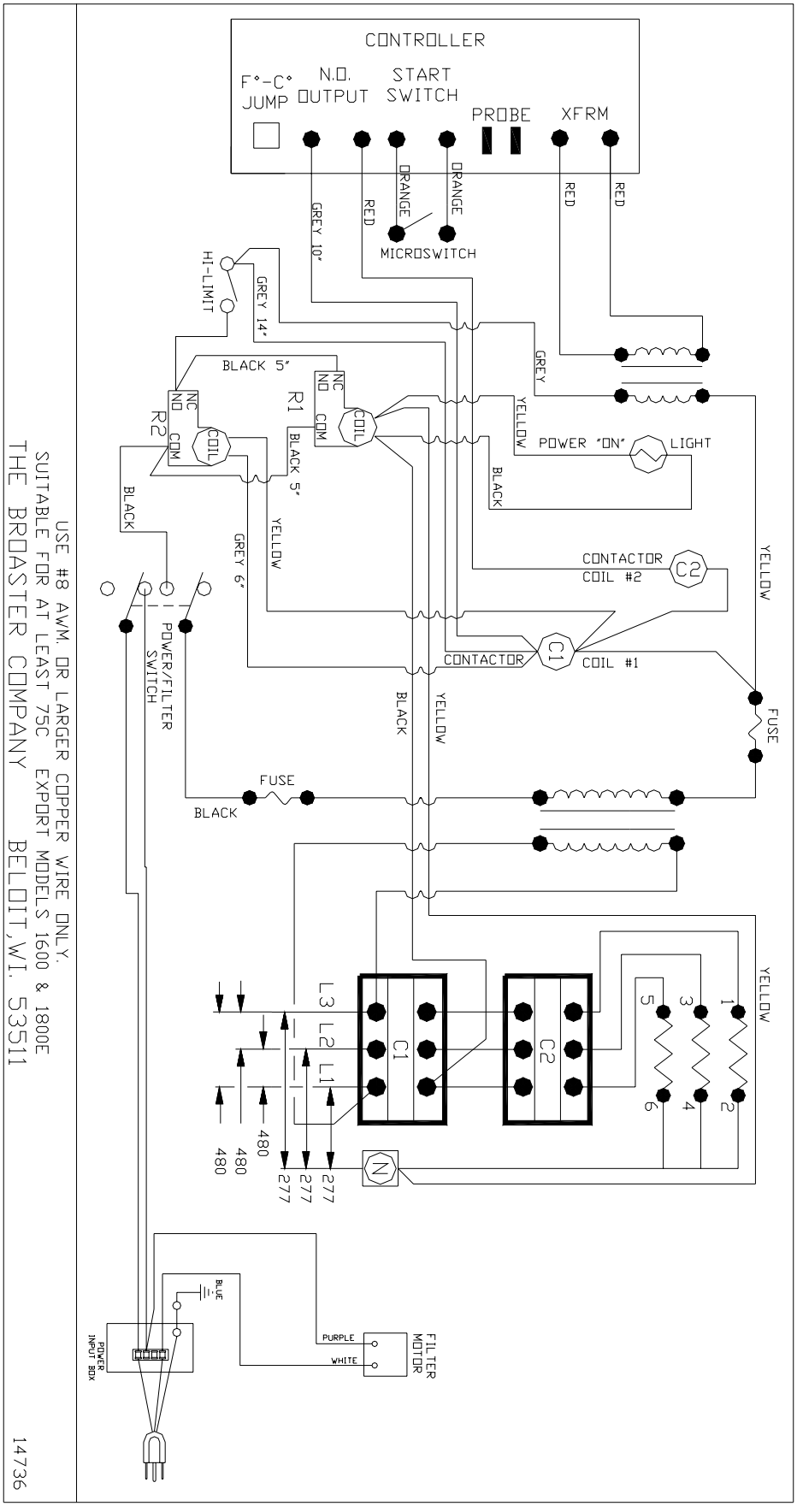
1600/1800E Solid State 208 or 240VAC:



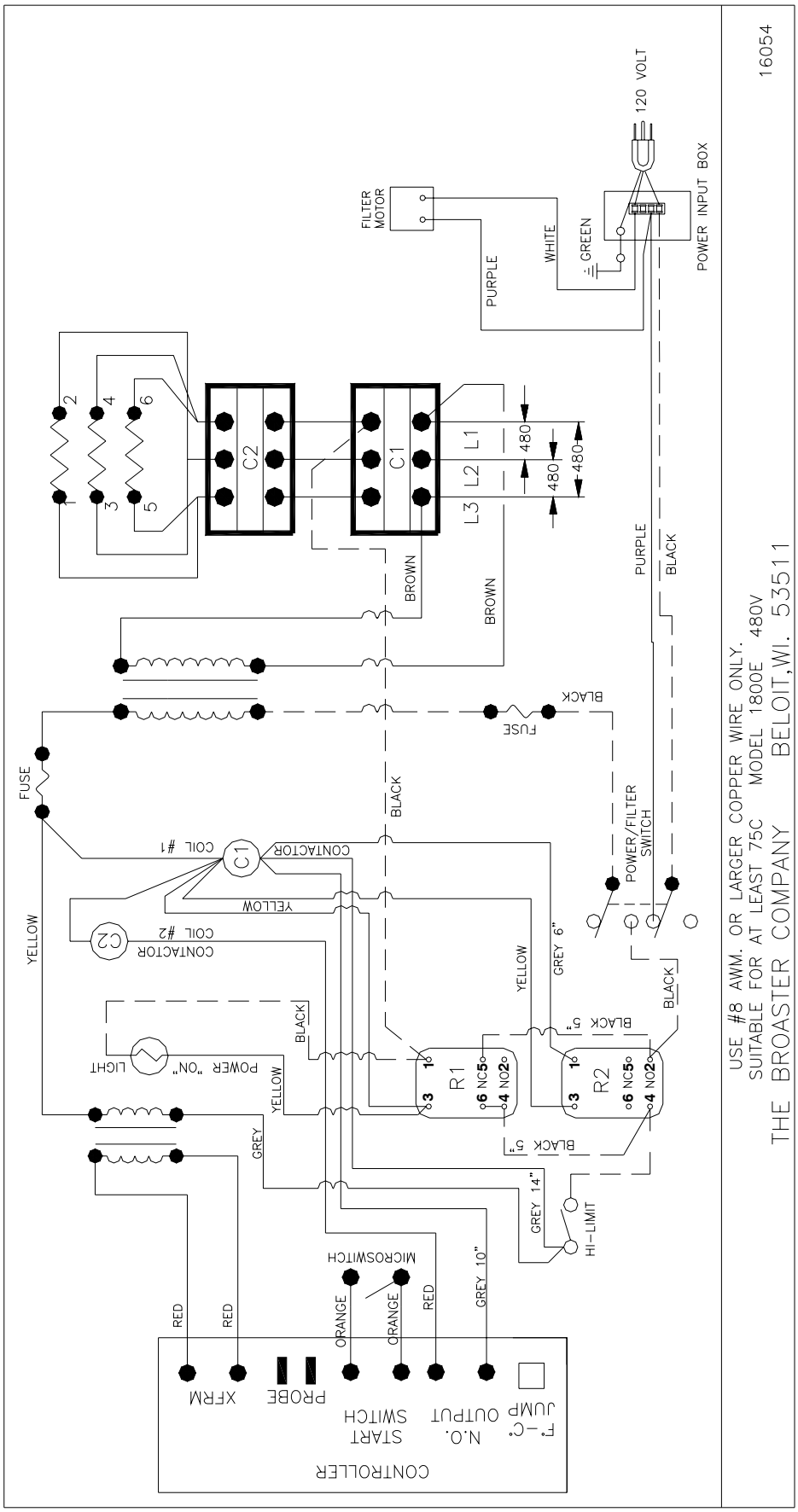

CONTROLLER
F°–C° JUMP
N.O. OUTPUT
START SWITCH
PROBE
XFRM
GREY 10"
RED
ORANGE
ORANGE
RED
RED
MICROSWITCH
HI–LIMIT
GREY 14"
BLACK 5"
GREY
YELLOW
POWER "ON"
LIGHT
BLACK
R2
R1
BLACK 5"
YELLOW
YELLOW
GREY 6"
CONTACTOR COIL #2
C2
YELLOW
BLACK
CONTACTOR
C1
COIL #1
OFF
BLACK
M
FILTER MOTOR (OPTIONAL)
POWER/FILTER SWITCH
BLACK
FUSE
FUSE
BLACK
BLACK
YELLOW
BLACK 18"
3Ph. – 50/60Hz.
L3
L2
L1
208/240
208/240
208/240
C1
C2
1
2
3
4
5
6
USE #8 AWM. OR LARGER COPPER WIRE ONLY.
SUITABLE FOR AT LEAST 75C
MODEL 1600 & 1800E
THE BROASTER COMPANY
BELOIT,WI. 53511
16050


16613
USE #8 AWM. OR LARGER COPPER WIRE ONLY.
SUITABLE FOR AT LEAST 75C MODEL 1600 & 1800E
THE BROASTER COMPANY BELOIT,WI. 53511
208/240
208/240
208/240
3Ph. - 50/60Hz.
L1
L2
L3
C1
C2
BLACK 18"
FUSE
BLACK
YELLOW
FUSE
POWER/FILTER SWITCH
OFF
PURPLE
FILTER MOTOR (OPTIONAL)
COIL #1
CONTACTOR
GREY 6"
COIL #2
CONTACTOR
R1
R2
NO
NC
POWER "ON" LIGHT
GREY
GREY 14"
HI-LIMIT
MICROSWITCH
GREY 10"
RED
RED
ORANGE
ORANGE
RED
XFRM
PROBE
START SWITCH
N.O. OUTPUT
T° - C° JUMP
CONTROLLER

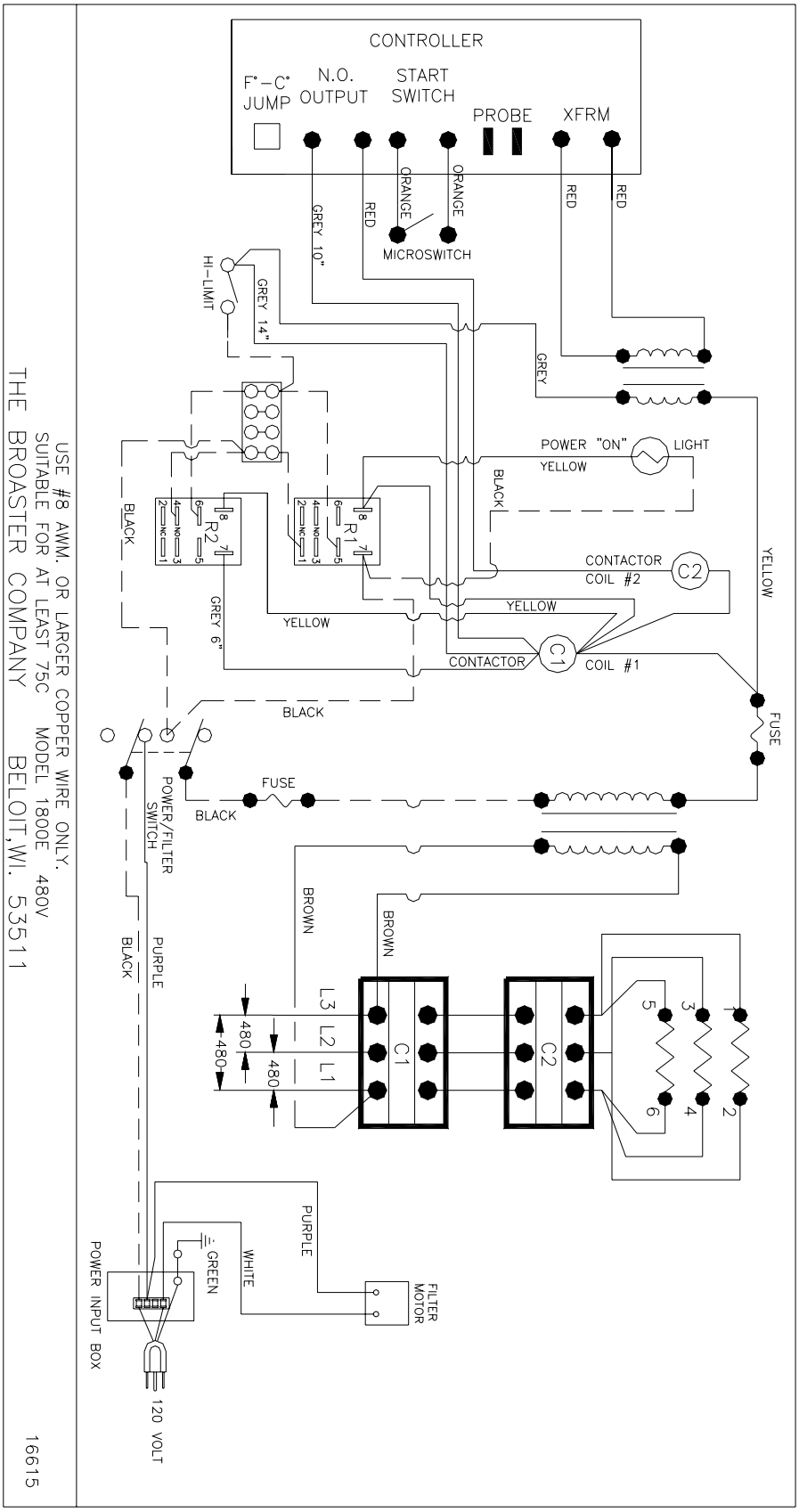
1600/1800E Solid State 480VAC:



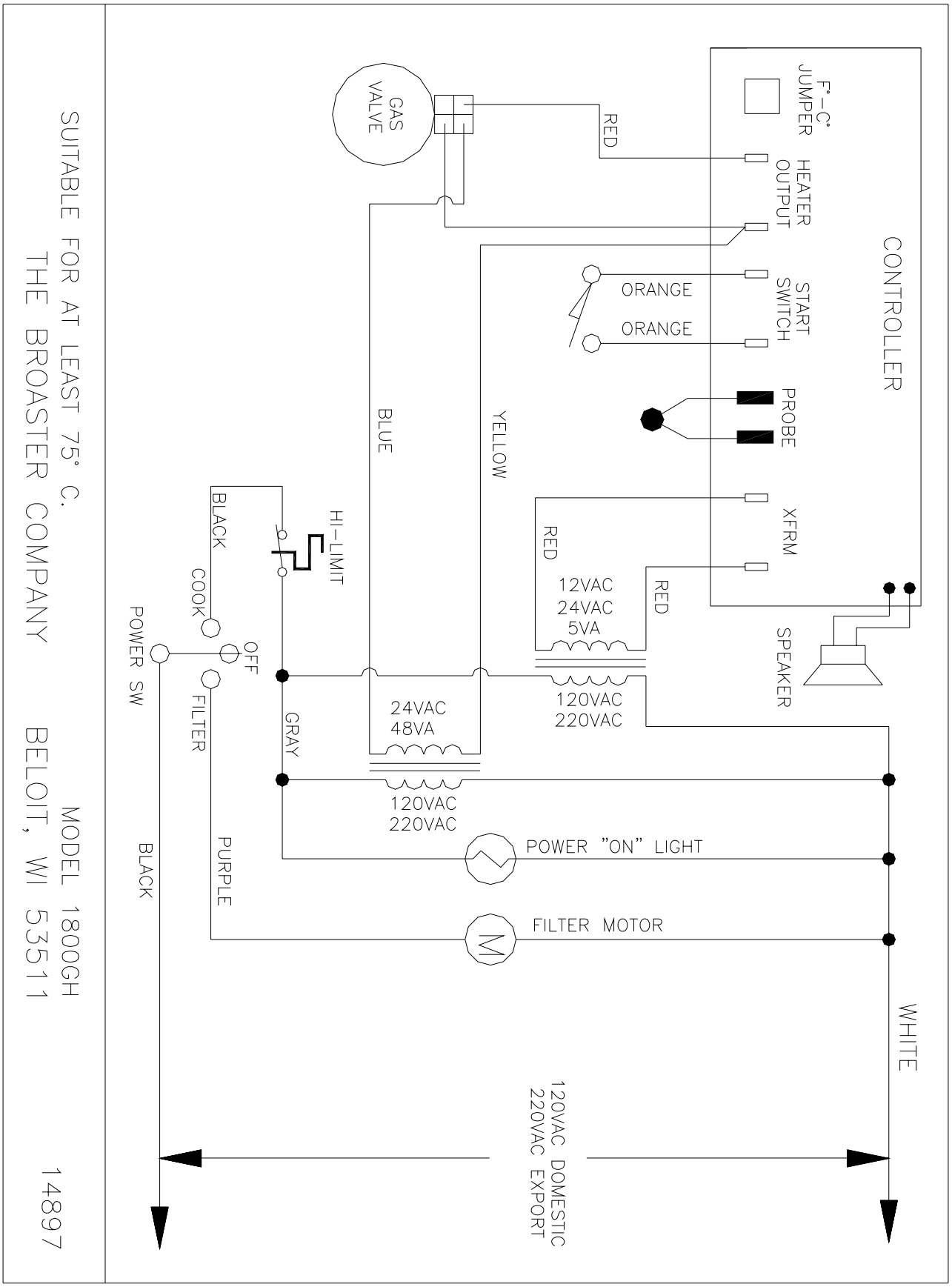
1600/1800E Solid State 480VAC: Effective January 04 (A40)



1600/1800E Solid State 480VAC: Effective November 06 (K60)



1800GH Solid State:



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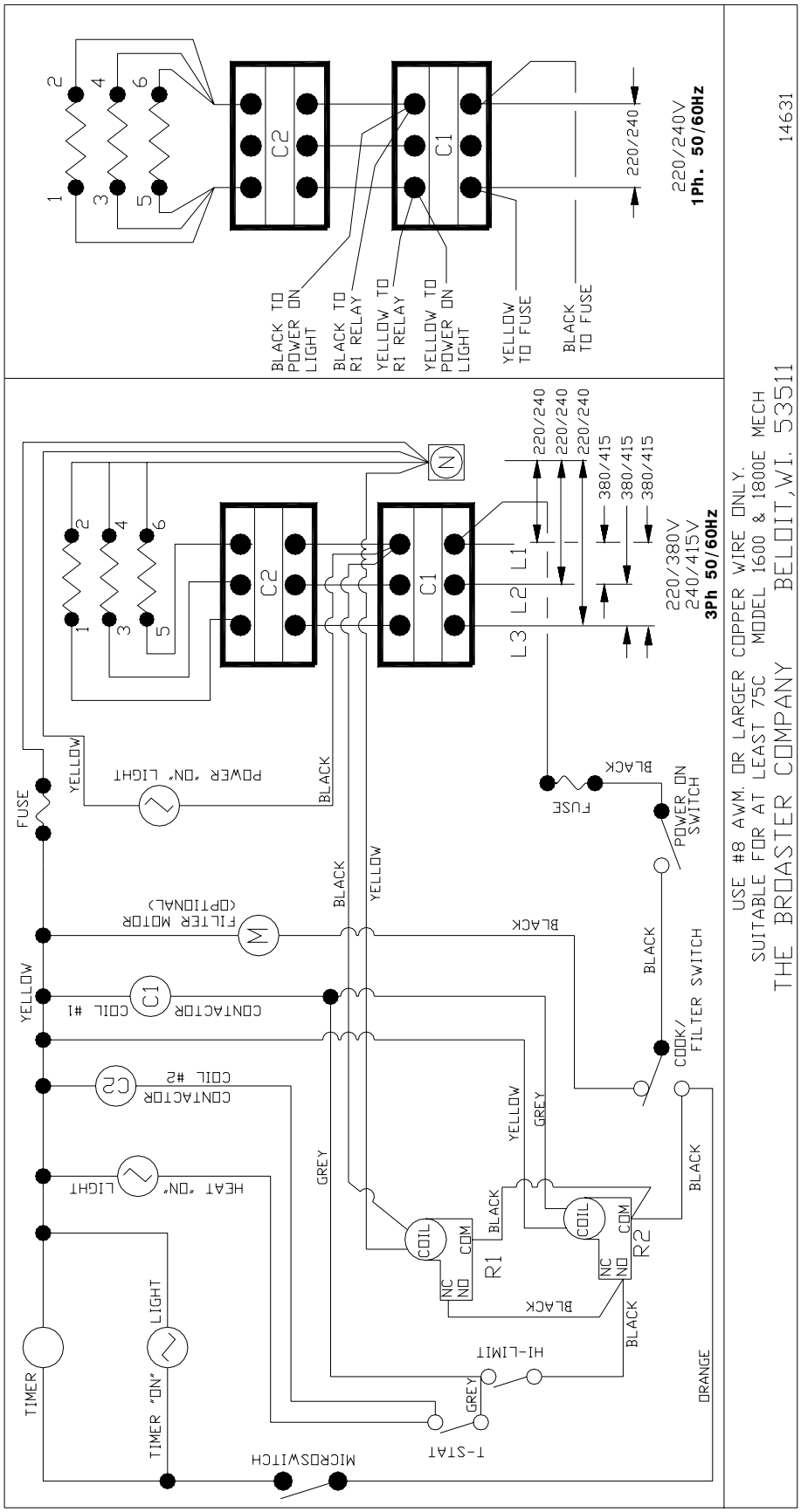
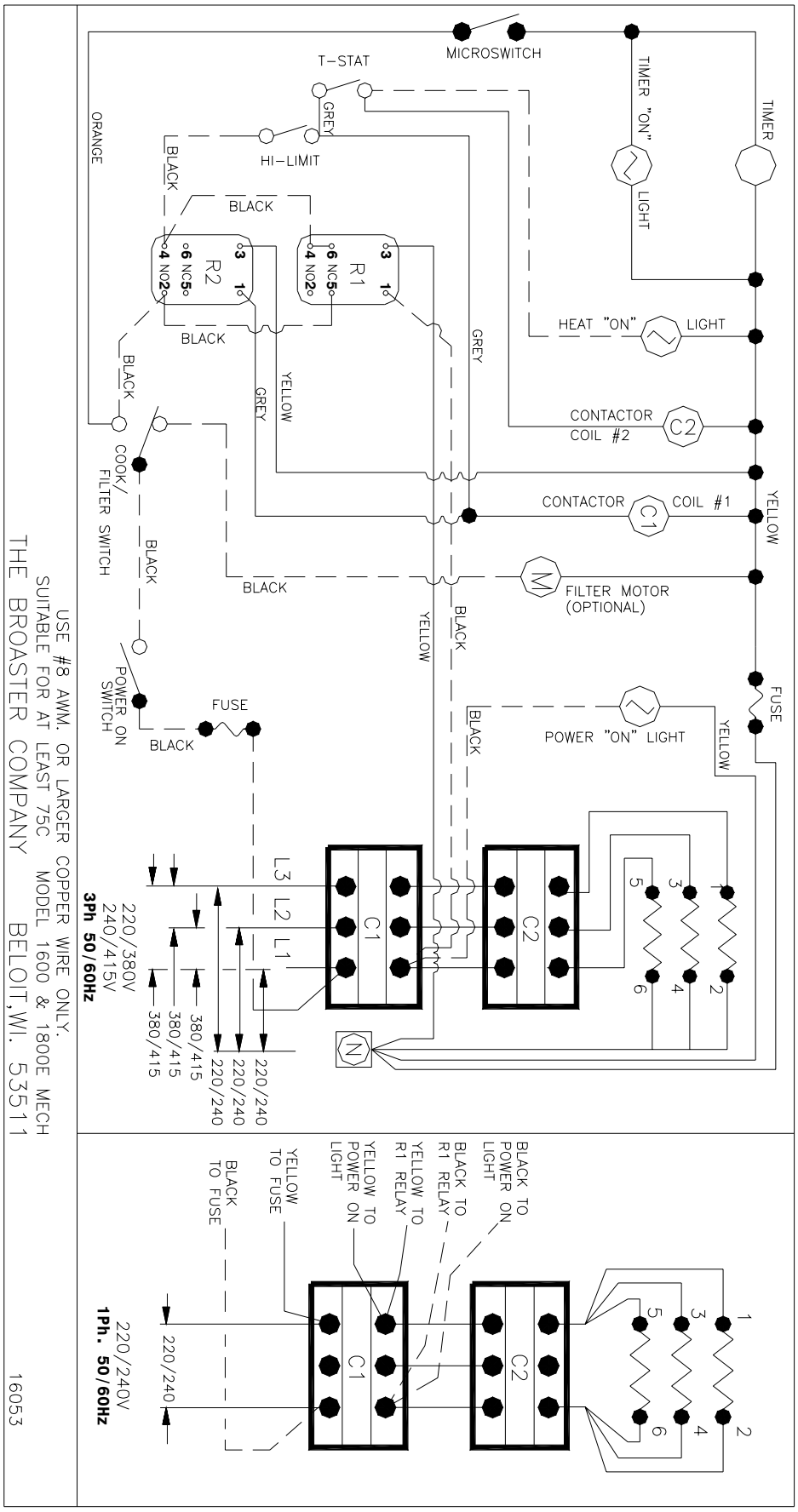
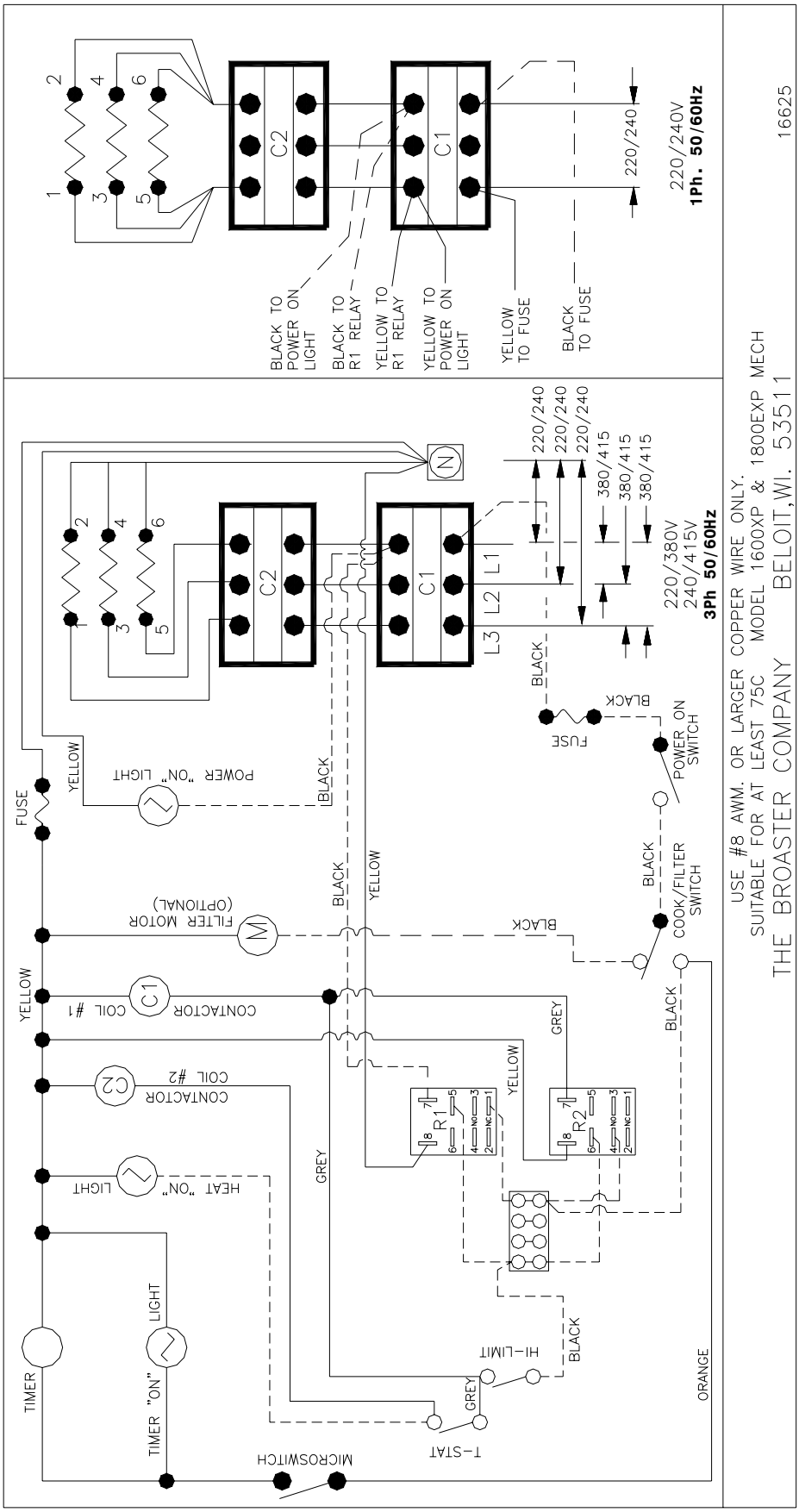


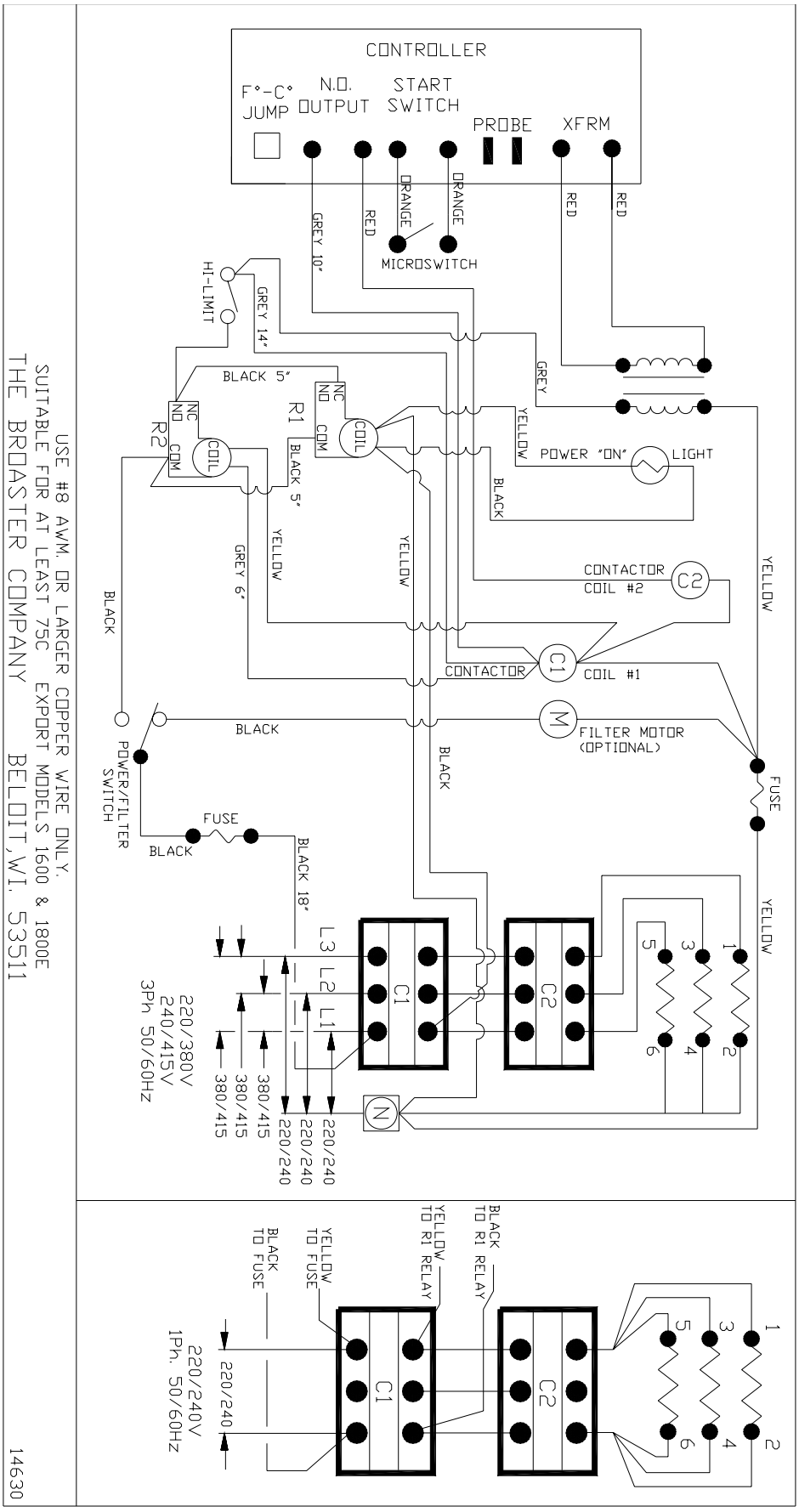


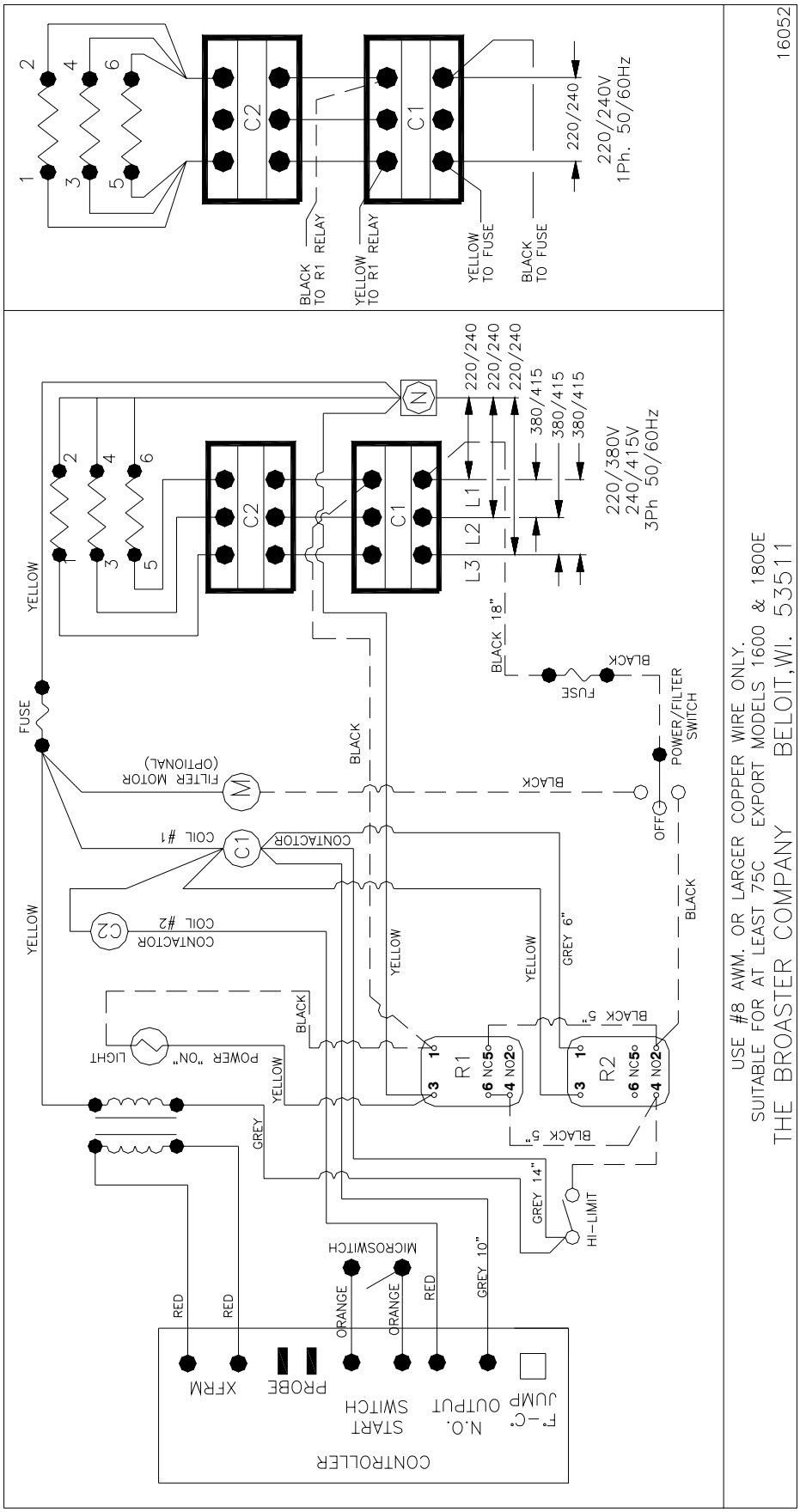
USE #8 AWM. OR LARGER COPPER WIRE ONLY.
SUITABLE FOR AT LEAST 75C MODEL 1600 & 1800E MECH
THE BROASTER COMPANY BELOIT,WI. 53511

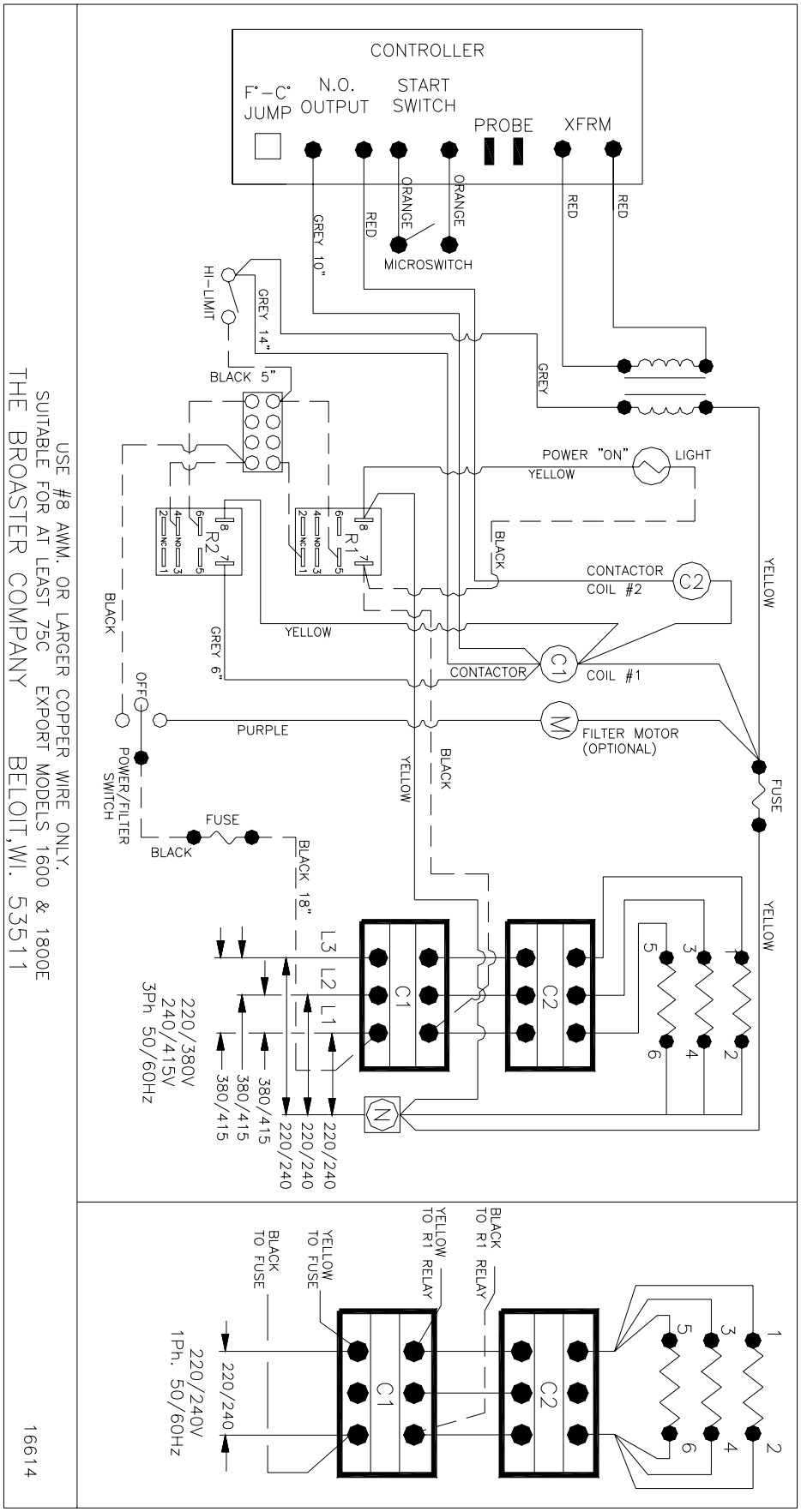
16053


THE BROASTER COMPANY BELOIT,WI. 53511
USE #8 AWM. OR LARGER COPPER WIRE ONLY.
SUITABLE FOR AT LEAST 75C MODEL 1600XP & 1800EXP MECH
16625
220/240V
1Ph. 50/60Hz
220/240
BLACK TO POWER ON LIGHT
BLACK TO R1 RELAY
YELLOW TO R1 RELAY
YELLOW TO POWER ON LIGHT
YELLOW TO FUSE
BLACK TO FUSE
220/380V
240/415V
3Ph 50/60Hz
220/240
220/240
220/240
380/415
380/415
380/415
L1
L2
L3
C1
C2
N
FUSE
POWER ON SWITCH
COOK/FILTER SWITCH
POWER "ON" LIGHT
FILTER MOTOR (OPTIONAL)
CONTACTOR COIL #1
CONTACTOR COIL #2
HEAT "ON" LIGHT
TIMER
TIMER "ON"
LIGHT
MICROSWITCH
T-STAT
HI-LIMIT
R1
R2
YELLOW
BLACK
GREY
ORANGE

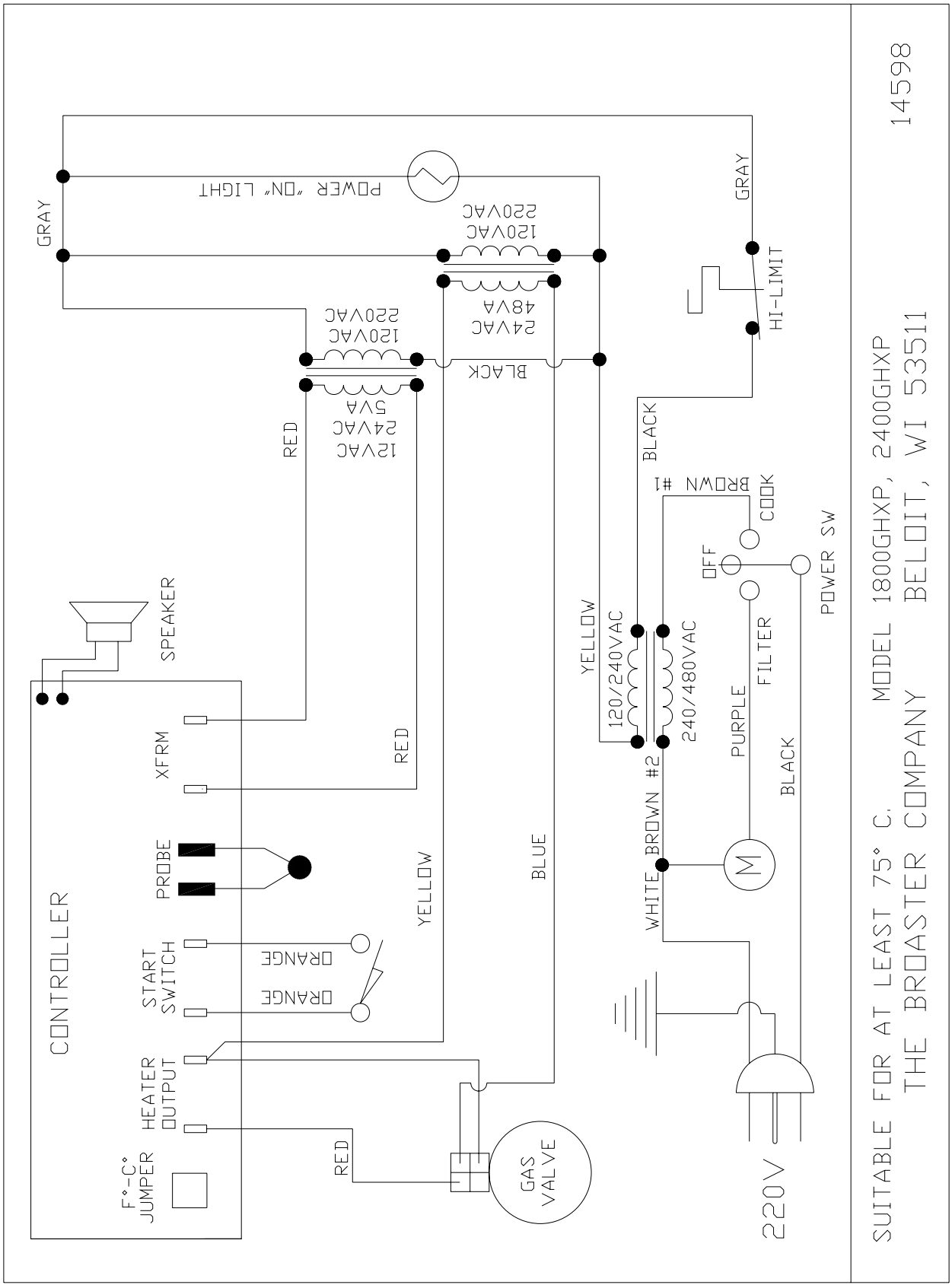
EXPORT: 1600XP/1800EXP Solid State:



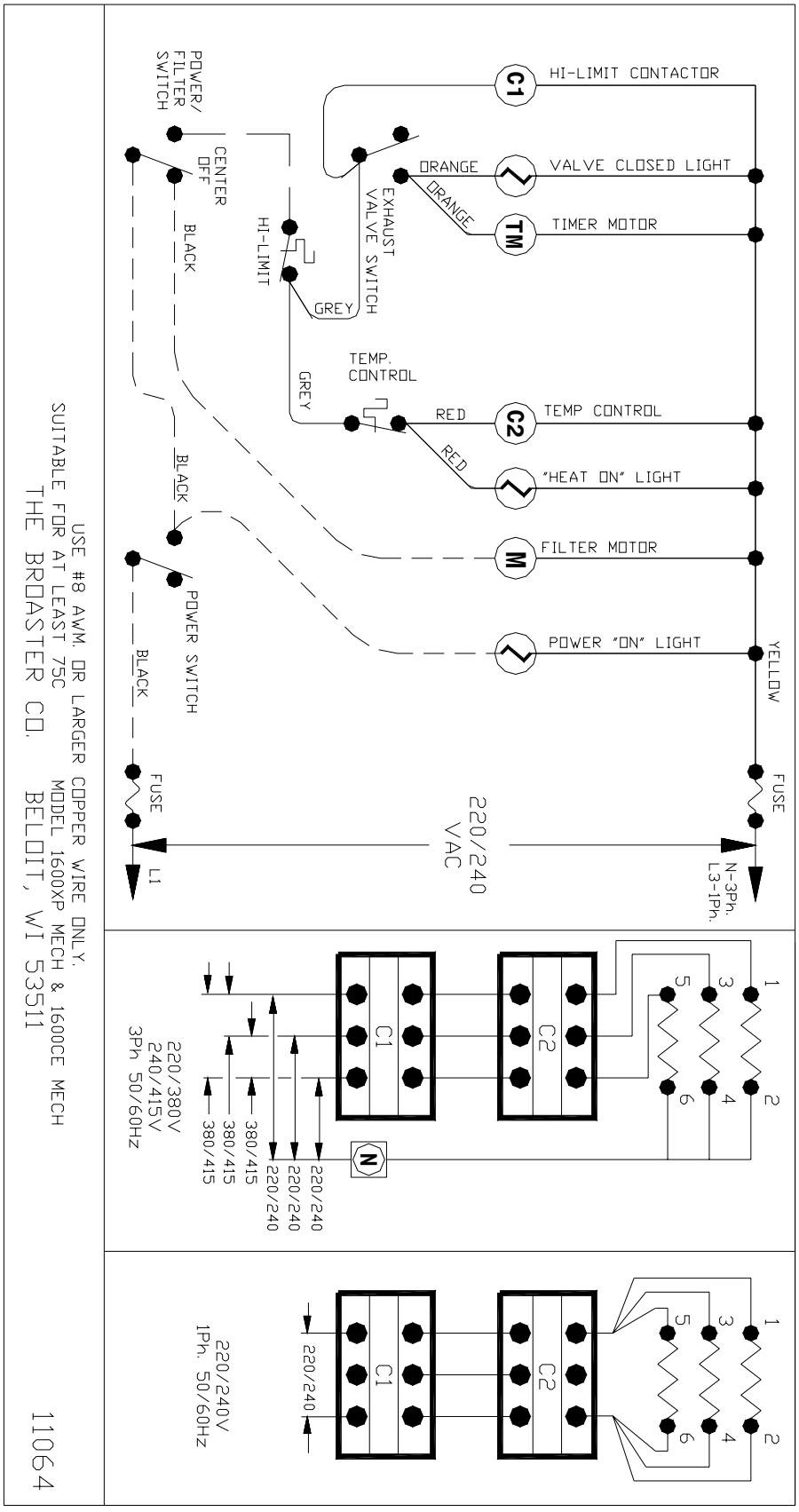

16052
220/240V
1Ph. 50/60Hz
220/240
BLACK TO R1 RELAY
YELLOW TO R1 RELAY
YELLOW TO FUSE
BLACK TO FUSE
C1
C2
220/380V
240/415V
3Ph 50/60Hz
220/240
380/415
L1
L2
L3
BLACK 18"
FUSE
POWER/FILTER SWITCH
OFF
FILTER MOTOR (OPTIONAL)
CONTACTOR
COIL #1
COIL #2
LIGHT
POWER "ON"
R1
R2
GREY 6"
GREY 14"
HI-LIMIT
MICROSWITCH
GREY 10"
CONTROLLER
F°-C° JUMP
N.O. OUTPUT
START SWITCH
PROBE
XFRM
USE #8 AWM. OR LARGER COPPER WIRE ONLY.
SUITABLE FOR AT LEAST 75C EXPORT MODELS 1600 & 1800E
THE BROASTER COMPANY BELOIT,WI. 53511


CONTROLLER
F°–C° JUMP
N.O. OUTPUT
START SWITCH
PROBE
XFRM
GREY 10"
RED
ORANGE
ORANGE
RED
RED
MICROSWITCH
HI-LIMIT
GREY 14"
BLACK 5"
GREY
POWER "ON" LIGHT
YELLOW
BLACK
CONTACTOR COIL #2
C2
YELLOW
R2
R1
BLACK
YELLOW
GREY 6"
CONTACTOR
C1
COIL #1
OFF
PURPLE
M
FILTER MOTOR (OPTIONAL)
POWER/FILTER SWITCH
YELLOW
BLACK
FUSE
FUSE
BLACK
BLACK 18"
YELLOW
L3
L2
L1
C1
C2
220/380V
240/415V
3Ph 50/60Hz
380/415
380/415
380/415
220/240
220/240
220/240
N
1
3
5
2
4
6
YELLOW TO R1 RELAY
BLACK TO R1 RELAY
YELLOW TO FUSE
BLACK TO FUSE
220/240V
1Ph. 50/60Hz
220/240
C1
C2
1
3
5
2
4
6
USE #8 AWM. OR LARGER COPPER WIRE ONLY.
SUITABLE FOR AT LEAST 75C EXPORT MODELS 1600 & 1800E
THE BROASTER COMPANY BELOIT,WI. 53511
16614

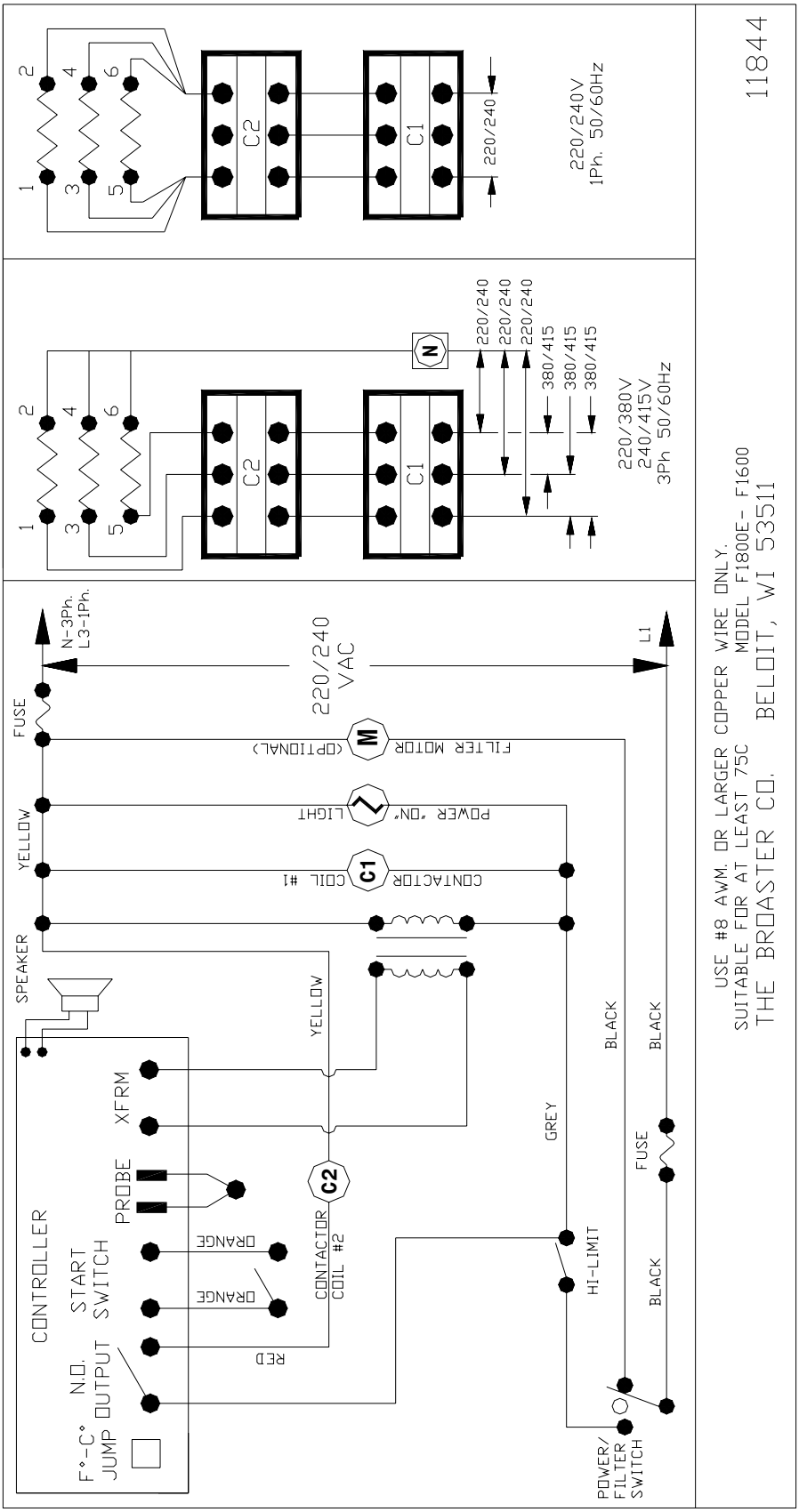
EXPORT: 1800GH Solid State:



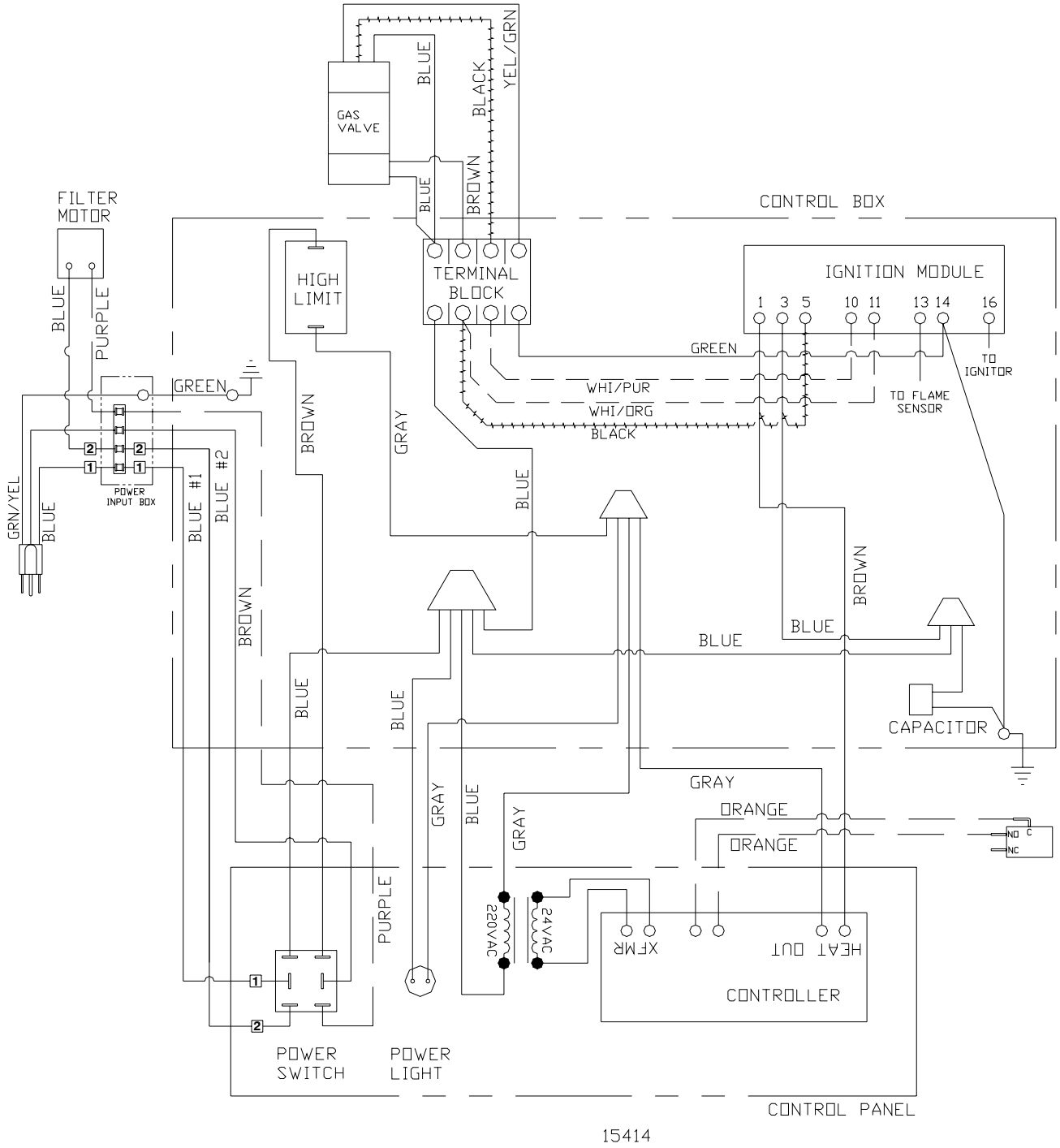
EU: 1600CE Mechanical:



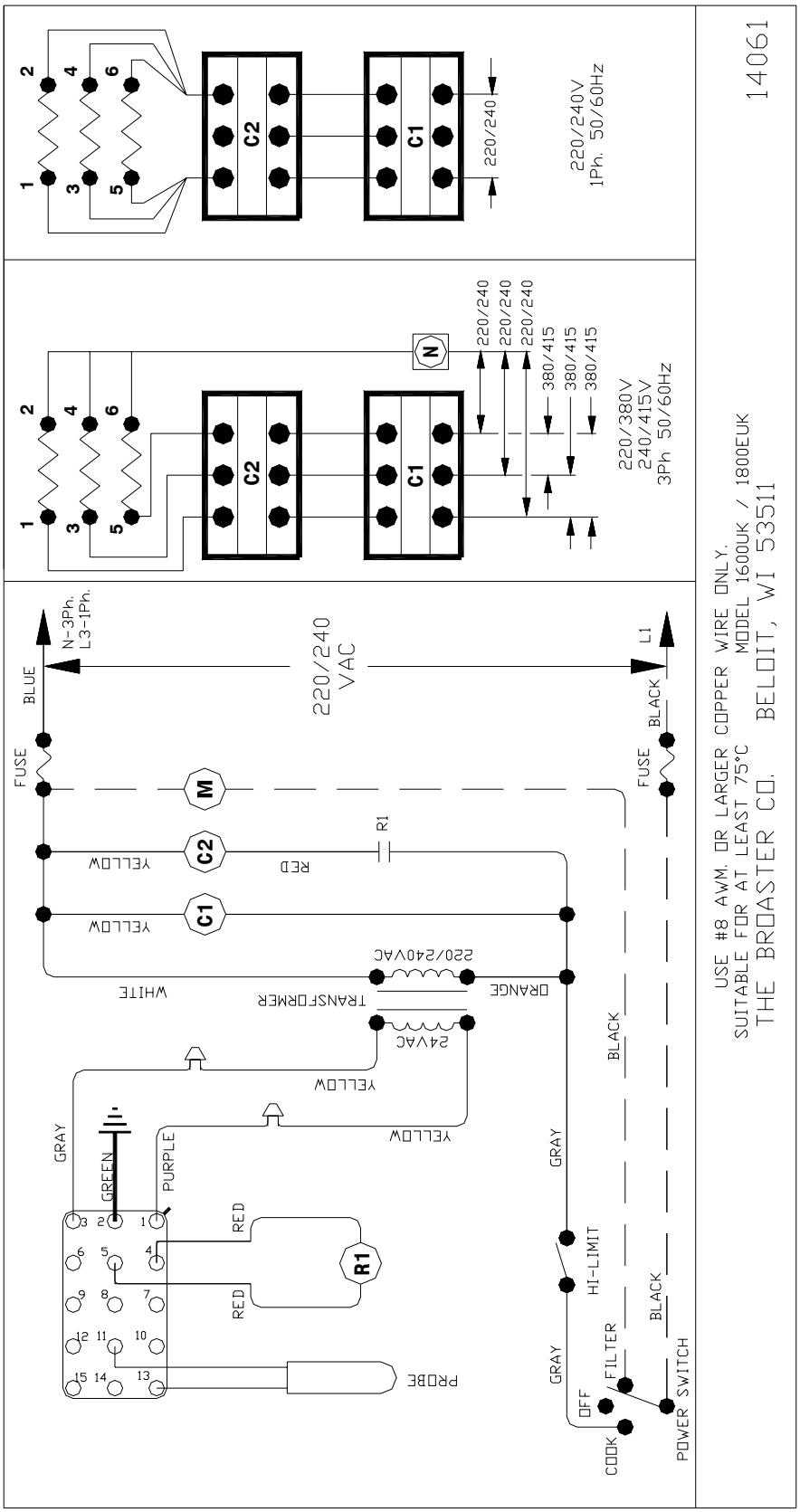
EU: 1600CE/1800ECE Solid State :



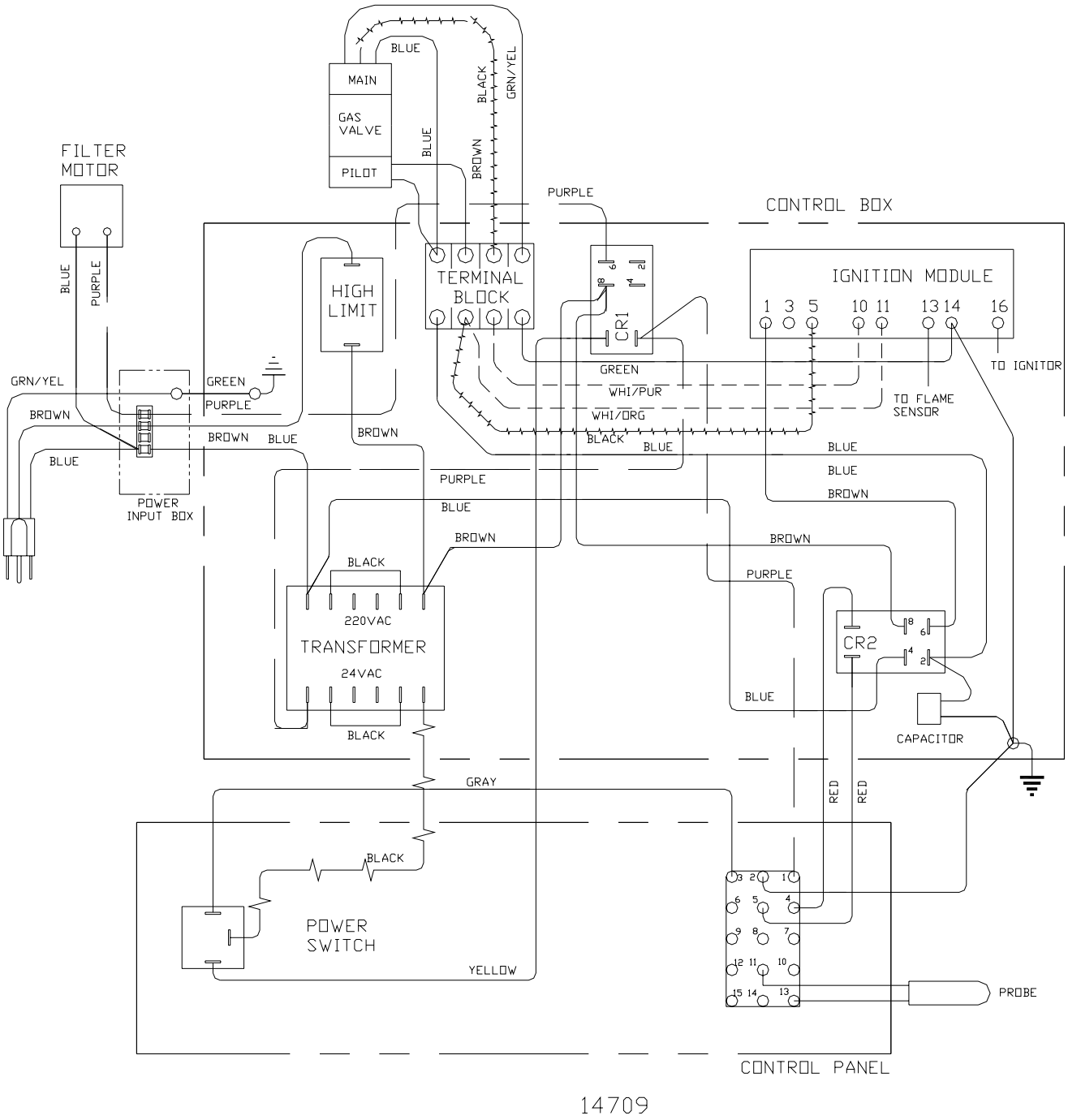
EU: 1800GHCE Solid State :



EU: 1600UK/1800EUK Solid State :

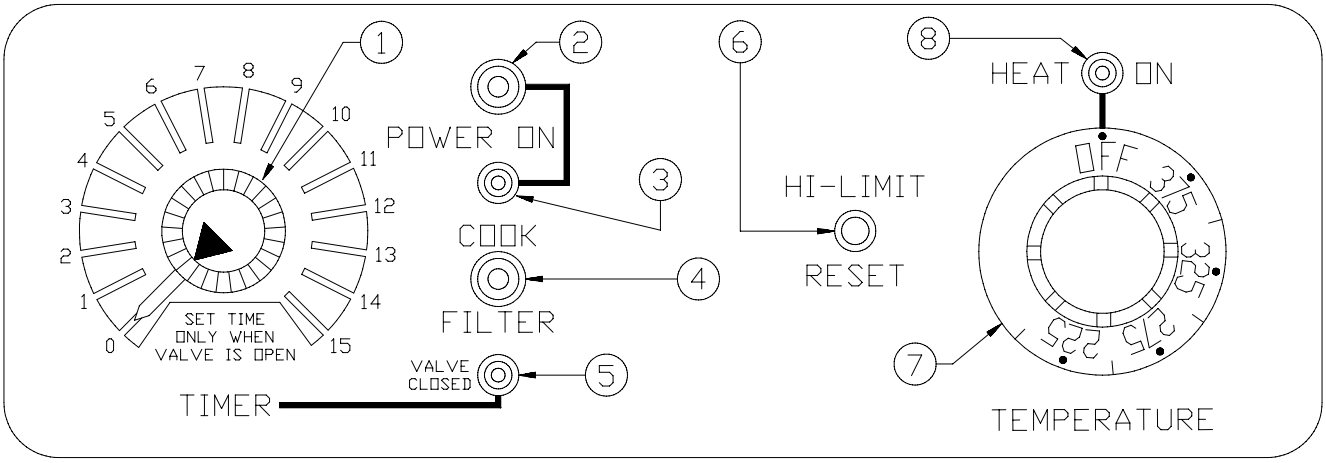


EU: 1800GHUK Solid State :



3 - 1600 MECHANICAL CONTROL PANEL

FAMILIARIZATION



1. Timer: Shows desired cooking time and time countdown during a cook cycle.

2. Power Switch: Upper position allows use of the function shown by the cook/ filter position. Lower position is OFF.

3. Power On Indicator Light: Illuminates when power switch is in the upper position.

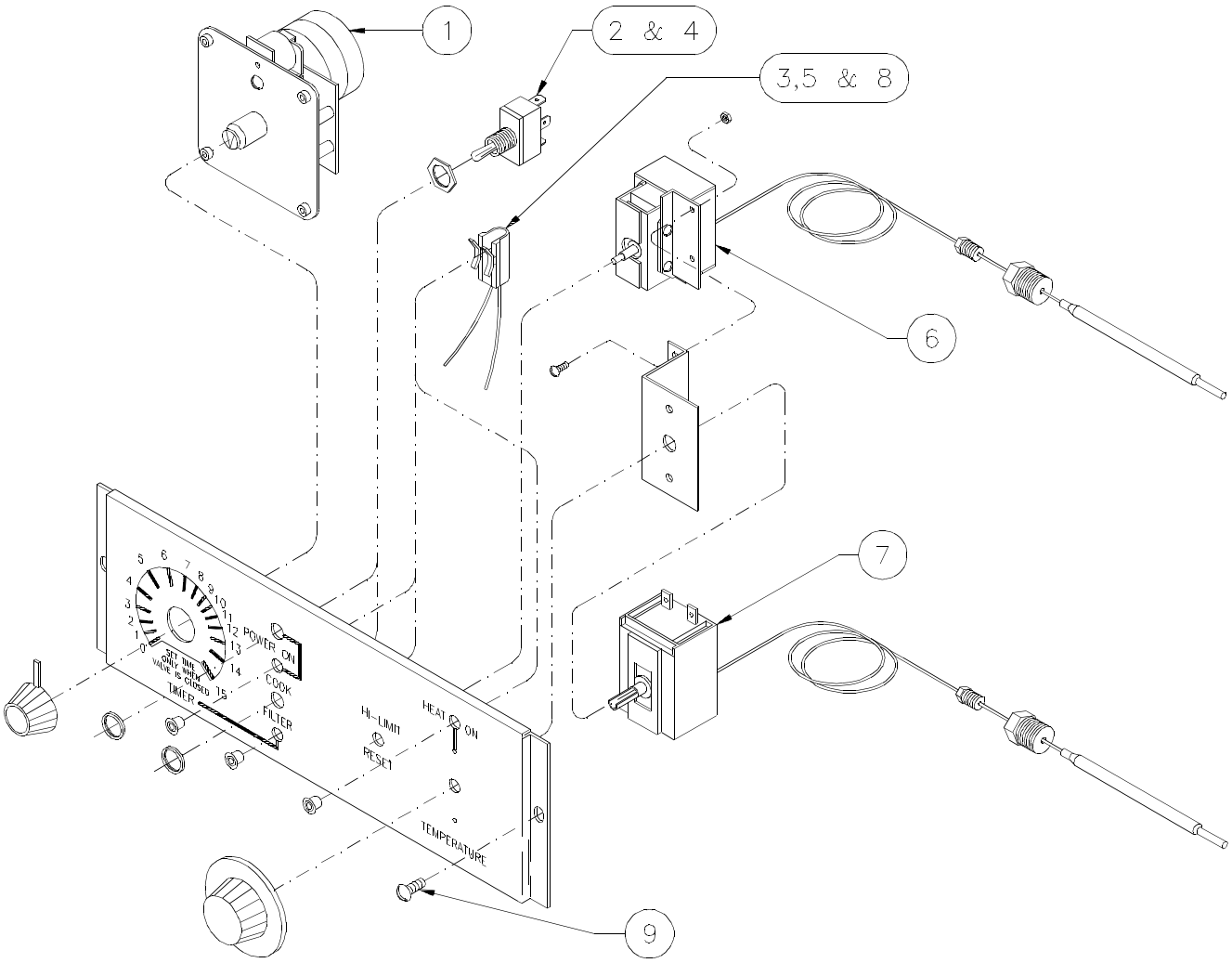
4. Cook/Filter Switch: Has two positions: COOK and FILTER.

5. Valve Closed Indicator Light: Illuminates when pressure regulating valve is CLOSED.

6. Hi-Limit Control: Prevents oil temperature from exceeding 475° F.

7. Temperature Control: Regulates oil temperature.

8. Heat On Indicator Light: Illuminates when oil is being heated.



ACCESS FOR SERVICE

1. Disconnect main power supply.

2. Remove condensate pan and one screw from bottom of front panel.

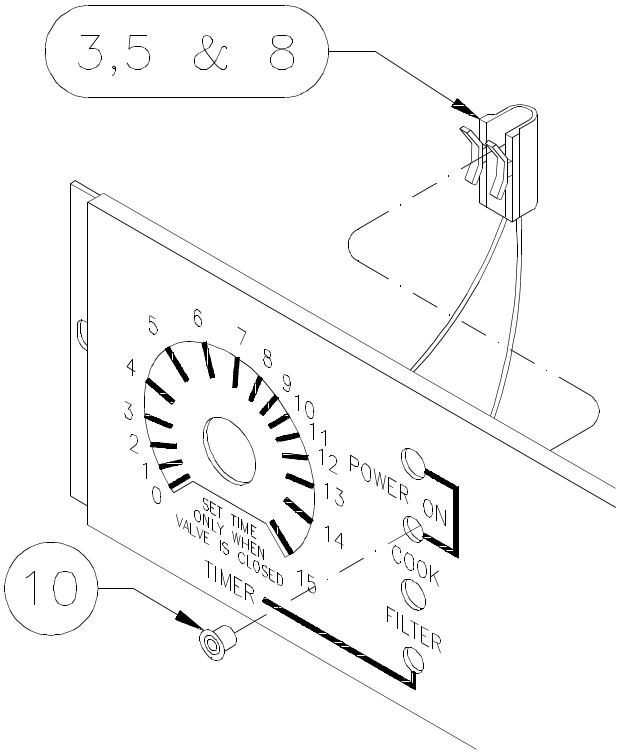
3. Remove two screws holding control panel (9) to the power input box. Tilt panel down so back is visible.

INDICATOR LIGHTS

There are three indicator lights on the control panel. Indicator lights will illuminate respectively when the POWER ON switch is on, COOK/FILTER switch is in COOK position and unit is heating and when the pressure regulating valve is CLOSED.

Replacement:

1. See ACCESS FOR SERVICE.



2. Disconnect wires.

3. Push down on light fixture (3,5 & 8) located behind the control panel. Slide fixture toward the wire end of fixture until amber lense (10) is free of fixture.

4. Install new light in reverse order. Be sure all wire connections are secure and in their original location.

COOK/FILTER SWITCH AND POWER ON SWITCH

1. See ACCESS FOR SERVICE.

2. Check all terminals and wire connections. Refer to wiring diagram.

3. Turn switch to COOK or ON position.

4. With needle nose pliers, disconnect center terminal from switch.

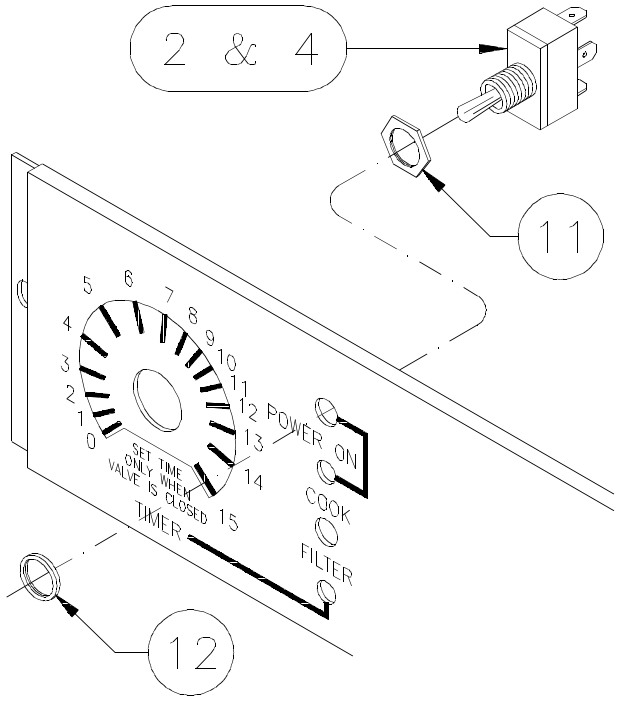
5. Check across center terminal and lower terminal with an ohmmeter. Meter should indicate a closed circuit. If not, switch is faulty.

6. Turn switch to FILTER or OFF.

7. Check across center terminal and upper terminal with an ohmmeter. Meter should indicate a closed circuit. If not, switch is faulty.

Replacement:

1. See ACCESS FOR SERVICE.



Continued:

2. With needle nose pliers, remove all wires from switch (2 or 4).

3. Loosen hex nut (11) on rear of control panel. Remove small knurled nut (12) from front of switch.

4. Install new switch in reverse order. Locate small groove in threaded portion of the switch toward bottom of the control panel. Be sure all wire connections are secure and in their original location.

TIMER

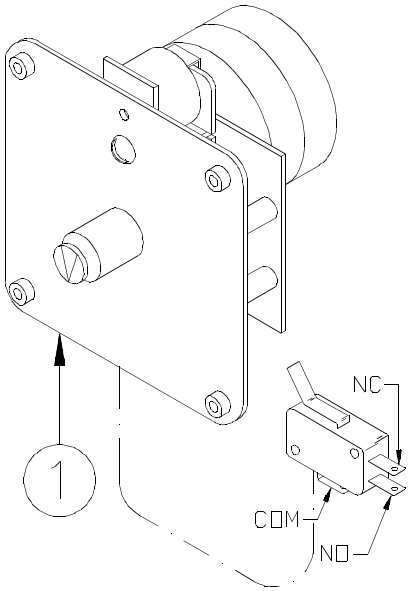
The timer will begin time countdown when the following conditions are present:

- COOK/FILTER switch is in the COOK position.
- POWER ON switch is on.
- Pressure regulating valve is CLOSED.

Note: If the buzzer sounds when timer (1) is activated, the normally open (NO) and normally closed (NC) wire terminals on microswitch may be touching.

1. See ACCESS FOR SERVICE.

2. Check all terminals and wire connections. Refer to wiring diagram.



3. Turn timer knob to any number greater than zero.

4. With needle nose pliers, disconnect common (COM) wire terminal from microswitch.

5. Check across COM and NC with an ohmmeter. Meter should indicate a closed circuit. If not, timer is faulty.

6. Check across COM and NO with an ohmmeter. Meter should indicate an open circuit. If not, timer is faulty.

7. Turn timer knob to zero.

8. Check across COM and NC with an ohmmeter. Meter should indicate an open circuit. If not, timer is faulty.

9. Check across COM and NO with an ohmmeter. Meter should indicate a closed circuit. If not, timer is faulty.

10. With needle nose pliers, disconnect one timer motor wire.

11. Check across two motor wires with an ohmmeter. Meter should indicate a closed circuit. If not, timer is faulty.

Replacement:

1. See ACCESS FOR SERVICE.

2. With needle nose pliers, remove wires from timer (1).

3. With an allen wrench, remove timer knob.

4. Remove timer mounting screws.

5. Install new timer in reverse order. Be sure all wire connections are secure and in their original location.

HI-LIMIT CONTROL

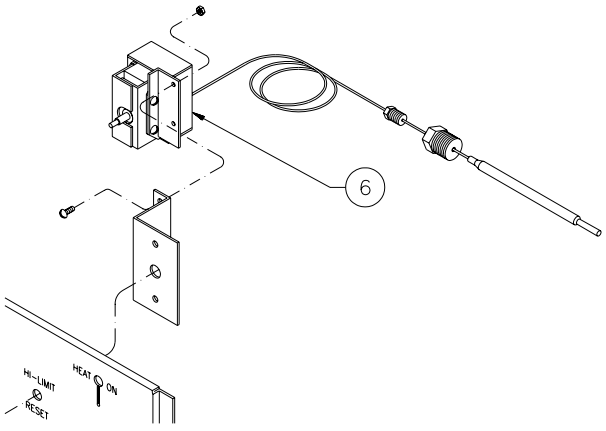
When the control opens, all controls are disabled.

- Check cooking oil temperature one inch below oil surface in center of cooking well. If oil temperature is close to the desired cooking temperature, check for a faulty control.
- Electricity cannot travel across faulty points.

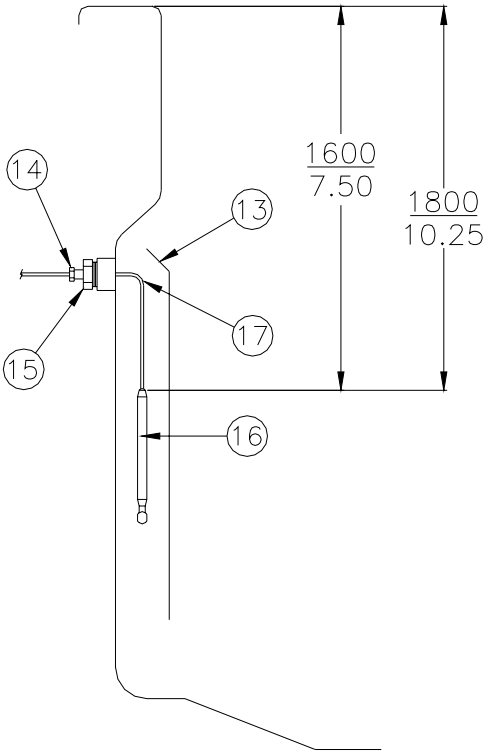
1. See ACCESS FOR SERVICE.
2. Fully depress red reset button then release.
3. With needle nose pliers, disconnect one wire from the control.
4. Check across two terminals with an ohmmeter. Meter should indicate a closed circuit. If not, the control is faulty.

Replacement:

1. See ACCESS FOR SERVICE.
2. OPEN cover. Drain cooking oil from cooking well.



3. Disconnect wires from control (6).
4. Remove capillary guard (13) from inside the cooking well.



5. Remove small nut (14) then large capillary nut (15) from outside the cooking well.
6. Pull control bulb (16) out of cooking well then remove control from control panel.
7. Insert new control bulb as shown above. Pull excess capillary (17) out of cooking well. Bend in the capillary must be large and smooth as possible.
8. Install large capillary nut securely after applying teflon tape on threads.
9. Install small capillary nut finger tight then tighten 1/4 turn with a wrench. DO NOT over tighten. Capillary may collapse or be cut in two.

Continued:

10. Reconnect wires then mount new control.

11. Replace capillary guard.

12. Return cooking oil into cooking well.

13. Cook a load of product and check for leaks.

14. Tighten smaller nut (14) if necessary.

THERMOSTAT

Cooking oil temperature is maintained by the thermostat control. Desired cooking oil temperature is indicated on the knob.

- If the hi-limit has opened, see HI-LIMIT CONTROL and CONTACTORS for troubleshooting. If cooking oil temperature is above 400?F, replace the thermostat or contactor.

1. See ACCESS FOR SERVICE.

2. Turn thermostat knob clockwise until you hear the control “click.”

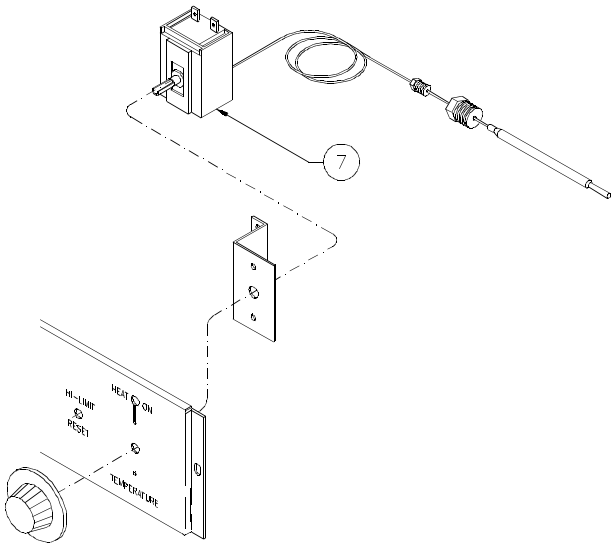
3. With needle nose pliers, disconnect one wire from the control.

4. Check across two terminals with an ohmmeter. Meter should indicate a closed circuit. If not, the control is faulty.

Replacement:

1. See ACCESS FOR SERVICE.

2. OPEN cover. Drain cooking oil from cooking well.

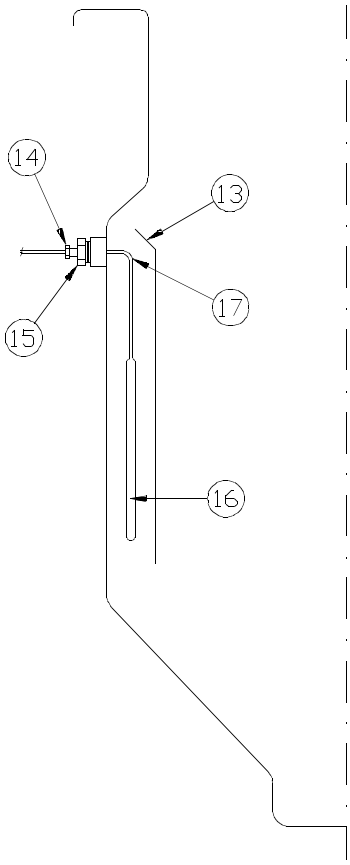


3. Disconnect wires from control (7).

4. Remove thermostat knob.

Continued:

5. Remove capillary guard (13) from inside the cooking well.



6. Remove small nut (14) then large capillary nut (15) from outside the cooking well.

7. Pull control bulb (16) out of cooking well then remove control.

8. Insert new control bulb in same position as the original. Pull excess capillary (17) out of cooking well. Bend in the capillary must be large and smooth as possible.

9. Install large capillary nut securely after applying teflon tape on threads.

10. Install small capillary nut finger tight then tighten 1/4 turn with a wrench. DO NOT over tighten. Capillary may collapse or be cut in two.

11. Reconnect wires then mount new control.

12. Replace thermostat knob.

13. Replace capillary guard.

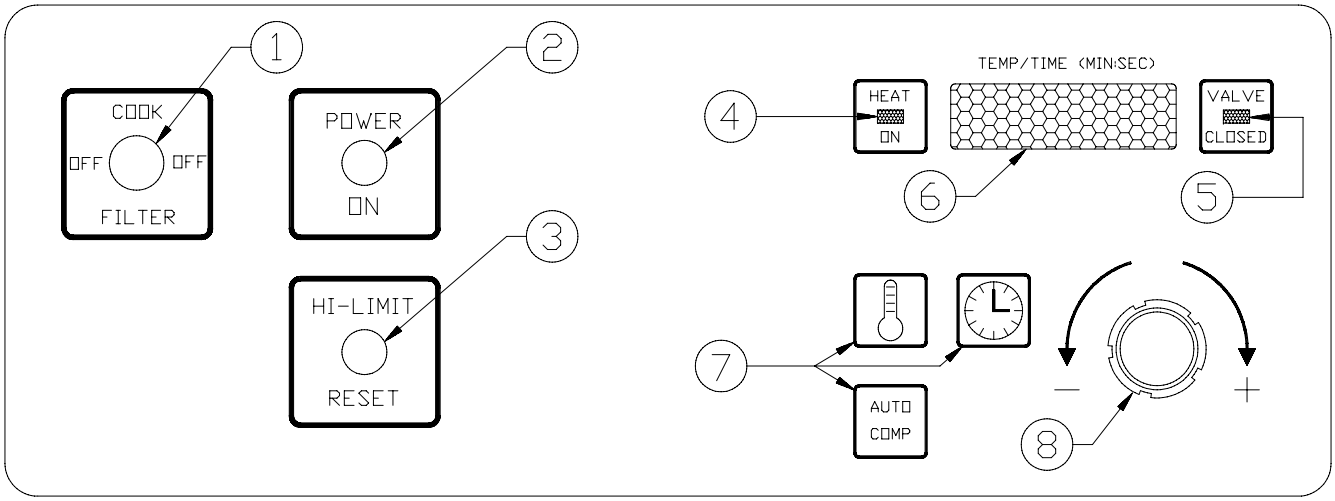
14. Return cooking oil into cooking well.

15. Cook a load of product and check for leaks.

16. Tighten smaller nut (14) if necessary.

4 - SOLID STATE CONTROL PANEL

ROTARY DIAL FAMILIARIZATION



1. Cook/Filter Switch: Has three positions: COOK, OFF and FILTER.

2. Power On Indicator Light: Illuminates when cook/filter switch is in COOK position.

3. Hi-Limit Control: Prevents oil temperature from exceeding 475° F. Turn unit OFF and DO NOT attempt to operate until it has been serviced by an authorized Broaster Company representative.

Note: It is possible for this control to trip during shipment. If it does, fully depress red reset button. If control “clicks” it was tripped. If not, it is correctly reset.

4. Heat On Indicator Light: Illuminates when oil is being heated.

5. Valve Closed Indicator Light: Illuminates when pressure regulating valve is CLOSED.

6. Display: Shows time countdown during a cook cycle, program values during programming and programmed time and temperature during idle period.

7. Program Buttons: Displays program values, initiates programming, stores desired program values and exits programming mode.

   Cook Temperature Button

   Cook Time Button

   AUTO COMP (Automatic Time Compensation Button: Indicates timing method. When OFF, controller operates as a regular timer. When ON, controller monitors oil temperature and adjusts time down rate to compensate for fluctuations in the oil temperature.

8. Rotary Knob: Changes program values.

CONTROLLER PROGRAMMING

CAUTION: Check oil level before turning cook/filter switch to COOK.

Action: Turn cook/filter switch to COOK.

Response: Display alternates between number values for cook temperature, cook time and LO (idle mode). LO will disappear when oil temperature has reached cook temperature value.

Action: Press one of three program buttons once.

Response: Display reads programmed value of button pressed. Display will return to idle mode after five seconds.

Temperature:

Action: Press cook temperature button twice within one second.

Response: Programming mode has been entered. Flashing display reads "###F." (### = temperature value ie: 360F)

Action: If desired, turn rotary knob to change displayed value. Press cook temperature button to enter new value into memory.

Response: Controller returns to idle mode.

Time:

Action: Press cook time button twice within one second.

Response: Programming mode has been entered. Flashing display reads "##:##." (##:## = time value ie: 08:00)

Action: If desired, turn rotary knob to change displayed value in fifteen second increments. Press cook time button to enter new value into memory.

Response: Controller returns to idle mode.

AUTO COMP (Automatic Time Compensation):

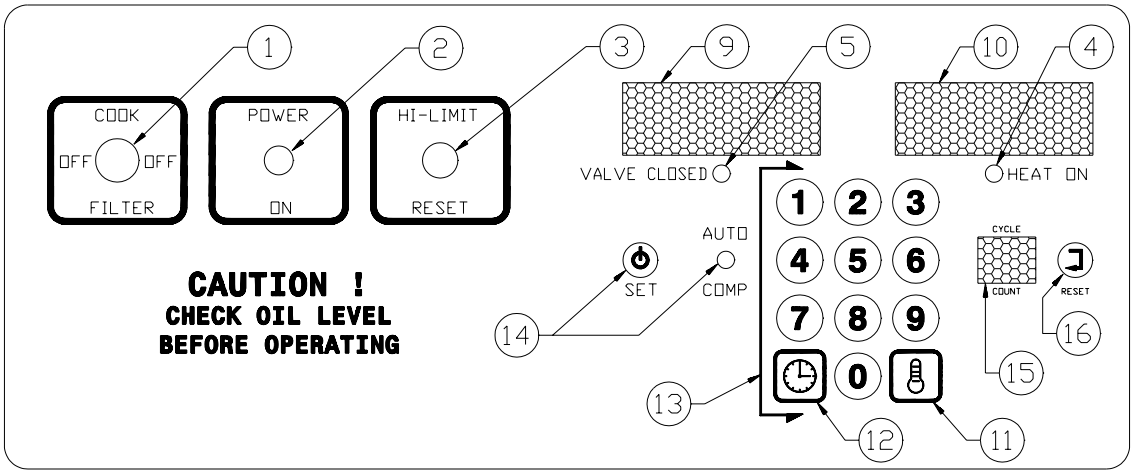
Action: Press AUTO COMP button twice within one second.

Response: Programming mode has been entered. Flashing display reads ON or OFF.

Action: If desired, turn rotary knob to change displayed value. Press AUTO COMP button to enter new value into memory.

Response: Controller returns to idle mode.WARNING DISPLAYSWARNING DISPLAYS

DUAL DISPLAY FAMILIARIZATION



1. Cook/Filter Switch: Has three positions: COOK, OFF and FILTER.

2. Power On indicator Light: Illuminates when cook/filter switch is in COOK position.

3. Hi-Limit Control: Prevents oil temperature from exceeding 475°F. Turn unit OFF and DO NOT attempt to operate until it has been serviced by an authorized Broaster Company representative.

Note: It is possible for this control to trip during shipment. If it does, fully depress red reset button. If control "clicks" it was tripped. If not, it is correctly reset.

4. Heat On Indicator Light: Illuminates when oil is being heated.

5. Valve Closed Indicator Light: Illuminates when pressure regulating valve is CLOSED.

9. Time Display: Shows time countdown during a cook cycle, program values during programming and programmed time during idle period.

10. Temp Display: Shows set temperature and actual temperature on demand.

11. Cook Temperature Button: Initiates temperature programming and display actual temperature.

12. Cook Time Button: Initiates time programming.

13. Numerical Keypad: Enters and adjusts set point values.

14. AUTO COMP (Automatic Time Compensation) Set Button and Light: Indicates timing method. When OFF, controller operates as a regular timer. When ON, controller monitors oil temperature and adjusts time down rate to compensate for fluctuations in the oil temperature.

15. Cycle Count Display: Increases in increments of one every time a cooking cycle is completed.

16. Cycle Count Reset Button: Resets the cycle count display to "zero".

CONTROLLER PROGRAMMING

CAUTION: Check oil level before turning cook/filter switch to COOK.

Action: Turn cook/filter switch to COOK.

Response: Temp Display alternates between number values for cook temperature, and LO (idle mode). LO will disappear when oil temperature has reached cook temperature value. Time Display will show the set time in minutes and seconds.

Set Temperature:

Action: Press Cook Temperature Button twice within 5 seconds.

Response: Programming mode has been entered. Flashing Temp Display reads "###F." (### = temperature value ie: 360F)

Action: If desired, press keypad numbers to change displayed value. Press Cook Temperature Button to enter new value into memory.

Response: Controller returns to idle mode.

Set Time:

Action: Press Cook Time Button twice within 5 seconds.

Response: Programming mode has been entered. Flashing Time Display reads "##:##." (##:## = time value ie: 08:00)

Action: If desired, press key pad numbers to change displayed value in minutes and seconds. Press Cook Time Button to enter new value into memory.

Response: Controller returns to idle mode.

Set AUTO COMP (Automatic Time Compensation):

Action: Press and hold AUTO COMP Button for 3 seconds.

Response: Green light will toggle on or off.

Read Actual Temperature:

Action: Press and hold Temp Button for 3 seconds.

Response: Temp Display will show actual oil temperature and will vary as cooling and heating takes place.

Action: Press Temp Button to return to set point display.

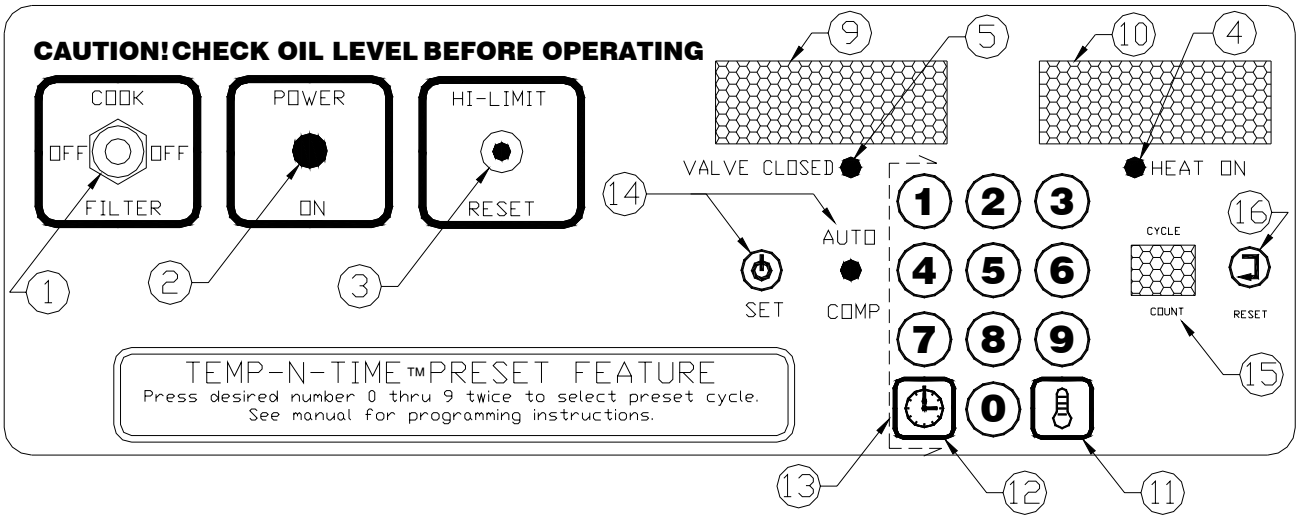
Reset Cycle Counter:

Action: Press Reset Button twice in 5 seconds.

Response: Display will return to a setting of "00."

Note: If counter is not reset before reaching "99." Upon the next cycle completion, the display will begin counting at "01."

Same as on page 4-2a



NOTE: For single product programming see page 4-2b.

PRESET PROGRAMMING

Choose Preset Cook Cycle:

Action: Press a button, 0 thru 9, corresponding to the desired preset.

Response: The TIME display will show "P__X", where X is the preset selected.

Note: If a button is not pressed in ten seconds, the display will revert to the previous display.

Action: Press the same button again,

Response: The TIME display will show the preset time, the AUTO COMP LED will turn on if enabled, the TEMP display will show the preset setpoint, and the temperature will now regulate to the new setpoint.

PROGRAMMING PROCEDURE (PRESET MODE)

Action: Press and hold the TIME and TEMP buttons simultaneously for three seconds.

Response: The TIME display and TEMP display will begin flashing. The CYCLE COUNT display will show "-0" indicating that the preset #0 values are displayed. The preset values for the TIME, TEMP, and AUTO COMP will be shown on the display.

Change Cook Time:

Action: Press the TIME button once.

Response: The TEMP display will turn off and only the TIME display will flash.

Action: Key in the desired cook time and press the TIME button to save the new setting.

Note: If a button is not pressed in ten seconds, the display will revert back to both the TIME and TEMP displays flashing.

Change Cook Temperature:

Action: Press the TEMP button once.

Response: The TIME display will turn off and the TEMP display will be flashing.

Action: Key in the desired temperature setting and press the TEMP button to save the new setting.

Note: If a button is not pressed in ten seconds, the display will revert back to both the TIME and TEMP displays flashing.

Activate/Deactivate Auto Comp:

Action: Press the AUTO COMP button once.

Response: AUTO COMP is enabled when the AUTO COMP LED is on and disabled when it is off.

Advance to Next Preset:

Action: Press the RESET button once.

Response: The CYCLE COUNT display will change to "-1" and the presets for #1 will be displayed.

Repeat the process as described. After the presets for #9 are displayed, pressing the RESET button again will cause the control to return to normal operation.

WARNING DISPLAYS

HI - Display will flash HI if cooking oil temperature exceeds 415°F. Audible alert will sound until cook/filter switch is turned OFF or hi-limit trips. All controller functions and heat source are disabled during this condition.

Cause: Faulty controller, gas valve (1800GH Only) or contactor (1600/1800E Only).

PROB - Display will flash PROB if there is a problem with temperature sensor probe. Audible alert will sound until cook/filter switch is turned OFF. All controller functions and heat source are disabled during this condition.

Cause: Temperature sensor probe faulty, polarity of probe wires reversed or probe wire(s) loose.

CHEC - Display will flash CHEC if cooking oil temperature does not rise 6°F within the first three minutes. Audible alert will sound until cook/filter switch is turned OFF. All controller functions and heat source are disabled during this condition.

Cause: Faulty controller, heating element(s) (1600/1800E Only), gas valve (1800GH Only), contactor (1600/1800E Only), probe or loose wiring.

Note: CHEC could appear if cooking oil temperature is below 45°F. Turn cook/filter switch OFF then to COOK for another two minute heating period. This may have to be repeated two or three times.

FAIL - Display will flash FAIL if controller detects a fault within itself. Audible alert will sound until cook/filter switch is turned OFF. All controller functions and heat source are disabled during this condition.

Cause: Faulty controller.

DISPLAY ACTUAL TEMPERATURE

Action: Press and hold cook temperature button for two seconds.

Response: Display will show actual temperature and will vary as cooling and heating takes place.

Action: Press cook temperature button again to return to idel mode.

CALIBRATION

Calibration will be necessary when tempeture sensor probe or controller is replaced. Calibrate using an accurate non-mercury test thermometer.

1. Thoroughly heat cooking oil. When HEAT ON light goes out, stir oil. If HEAT ON light comes back on allow unit to recover until light goes out. This may have to be done several times.

2. Press and hold cook temperature button for ten seconds until OFF then SET is displayed twice. Release button.

3. Uncalibrated cooking oil temperature is displayed. Calibration must be performed.

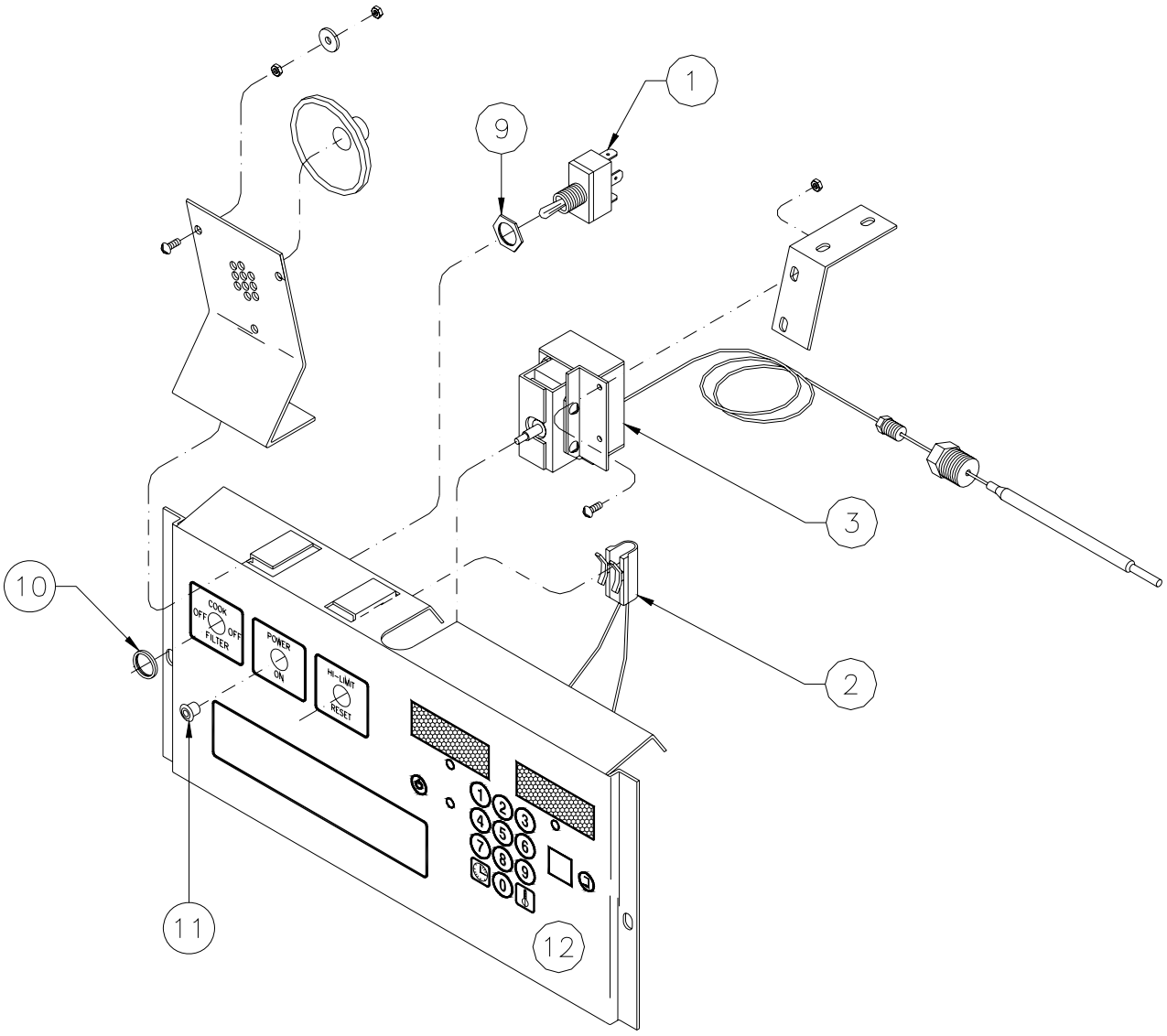
4. Check cooking oil temperature one inch below oil surface in the center of cooking well.

5. **Rotary Dial Controller:** Turn rotary knob to match controller display with calibrating thermometer.

   OR

6. **Dual Display Controller:** Using keypad, enter temperature to match controller display with calibrating thermometer.

7. Press temp button to exit calibration.



ACCESS FOR SERVICE

1. Disconnect main power supply.

2. Remove condensate pan and screw(s) from bottom of front panel. Pull out and down on bottom to remove.

3. Remove screws holding controller (12) to the power input box. Tilt panel down so back is visible.

COOK/FILTER SWITCH

1. See ACCESS FOR SERVICE.

2. Check all terminals and connections. Refer to wiring diagram.

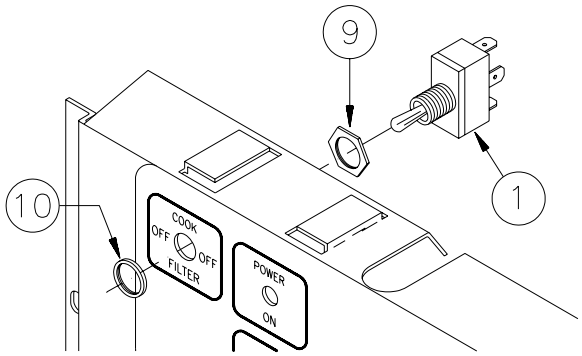
3. With needle nose pliers, disconnect center terminal from switch.

4. Turn switch to COOK.

5. Check across center terminal and lower terminal with an ohmmeter. Meter should indicate a closed circuit. If not, switch is faulty.

6. Turn switch to FILTER. Check across center terminal and upper terminal. Meter should indicate a closed circuit. If not, switch is faulty.

Replacement:



1. See ACCESS FOR SERVICE.

2. Note where wires are connected. With needle nose pliers, remove all wires from switch (1).

3. Loosen hex nut (9) on rear of control panel. Remove small knurled nut (10) from front of switch.

4. Install new switch in reverse order. Be sure small groove in threaded portion of switch is down. Be sure all wire connections are secure and in the original location.

HI-LIMIT CONTROL

When controller opens, all controls are disabled except the filter motor.

There are two ways to determine if the control is faulty:

- Control open at cooking temperature. Check cooking oil temperature 1 inch below oil surface in center of cooking well.

- Electricity cannot travel across faulty points.

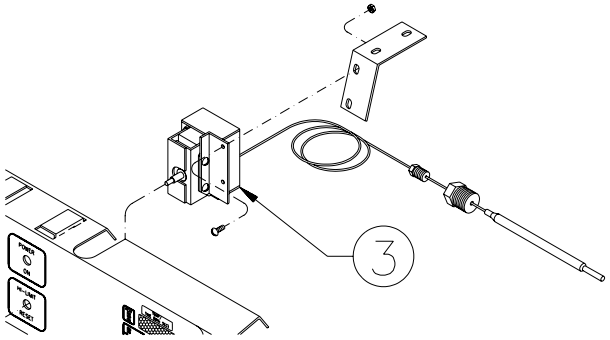
  1. See ACCESS FOR SERVICE.

  2. Fully depress red reset button then release.

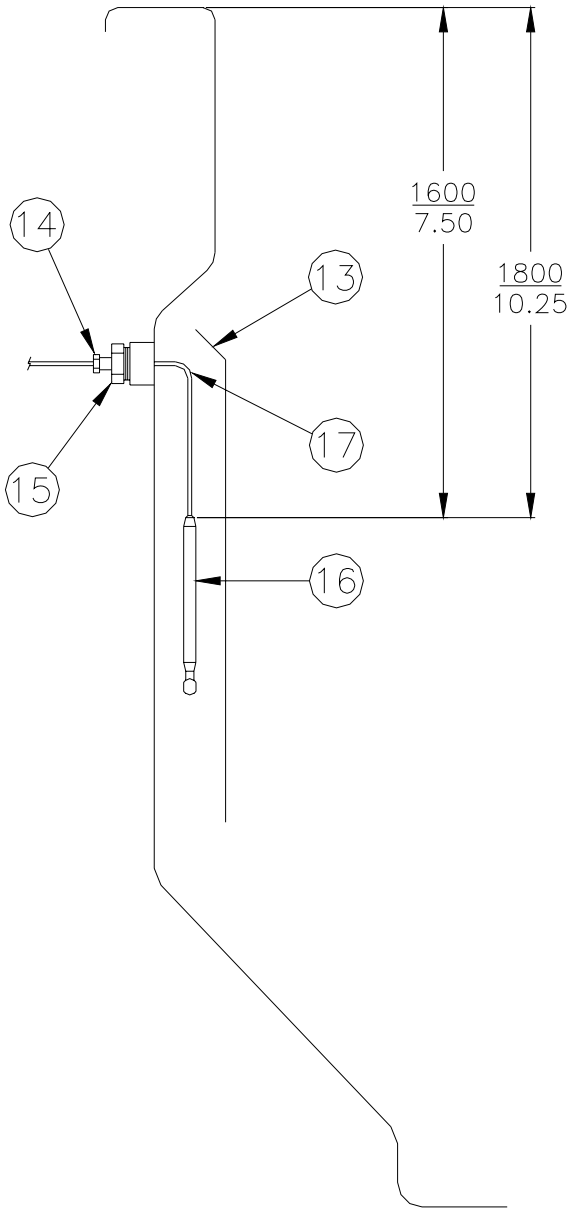
  3. With needle nose pliers, disconnect one wire from control.

  4. Check across two terminals with an ohmmeter. Meter should indicate a closed circuit. If not, control is faulty.

Replacement:



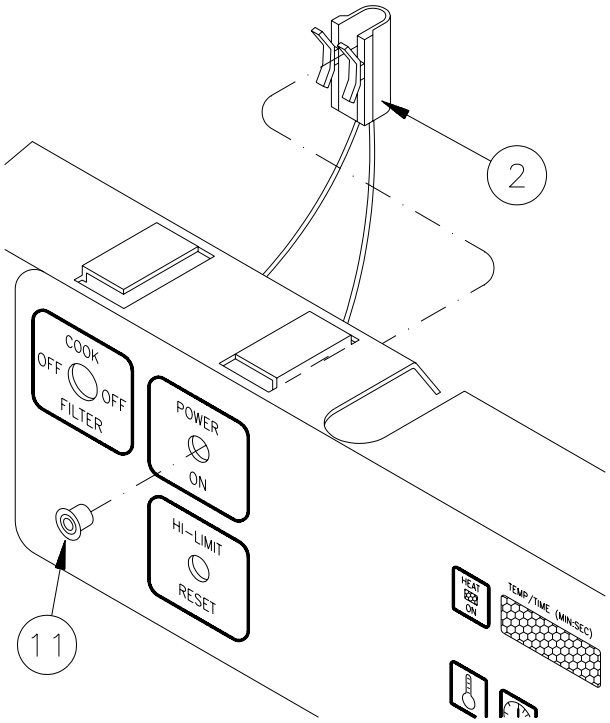
1. See ACCESS FOR SERVICE.
2. OPEN cover. Drain cooking oil from cooking well.
3. Note where wires are connected. Remove wires from control (3).
4. Remove capillary guard (13) from inside cooking well.
5. Remove small nut (14) then large capillary nut (15) from outside cooking well.
6. Pull control bulb (16) out of cooking well then remove control from control panel.
7. Insert control bulb as shown in picture at right. Pull excess capillary (17) out of cooking well. Bend in capillary must be large and smooth as possible.
8. Install large capillary nut securely after applying teflon tape on threads.
9. Install small capillary nut finger tight then tighten 1/4 turn with a wrench. DO NOT over tighten. Capillary may collapse or be cut in two.
10. Reconnect wires then mount new control.
11. Replace capillary guard.
12. Return cooking oil to cooking well.
13. Cook a load and check for leaks.
14. Tighten smaller nut (14) if necessary.



POWER ON INDICATOR LIGHT

Illuminates when cook/filter switch is turned to COOK.

Replacement:



1. See ACCESS FOR SERVICE.
2. Disconnect wires.
3. Push down on light fixture (2) located behind control panel. Slide fixture toward wire end until amber lens (11) is free of fixture.
4. Install new light in reverse order. Be sure all wire connections are secure and in the original location.

SOLID STATE CONTROLLER

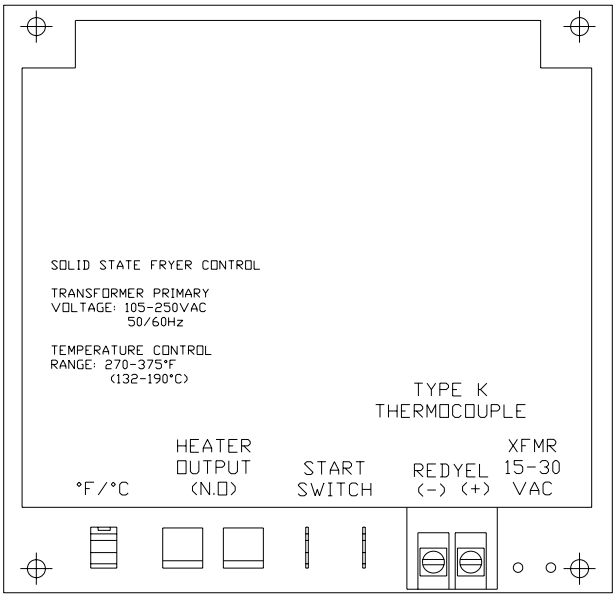
The controller regulates time and temperature.

Miscellaneous: Remove F/C jumper to display temperature in Celsius.

Replacement:

Note: Within warranty, controller should be replaced as a whole: circuit board, transformer, speaker and control panel. Out of warranty, transformer and speaker are available separately.

1. See ACCESS FOR SERVICE.
2. Remove cook/filter switch.
3. Remove power on indicator light.



4. Disconnect HEATER OUTPUT (N.O.) wires using needle nose pliers.
5. Disconnect START SWITCH wires using needle nose pliers.

Continued:

6. Disconnect probe wires.

Note: Be sure red and yellow wires are not reversed during replacement. Controller will display PROB if polarity is reversed.

7. Disconnect transformer wires within wire nuts.

8. Remove controller.

9. Assemble in reverse order.

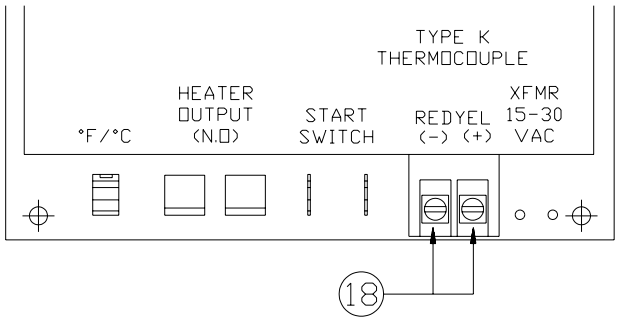
10. See CALIBRATION.

TEMPERATURE SENSOR PROBE

This probe is a thermocouple. It sends fluctuating millivolts to the controller which is translated into degrees of temperature.

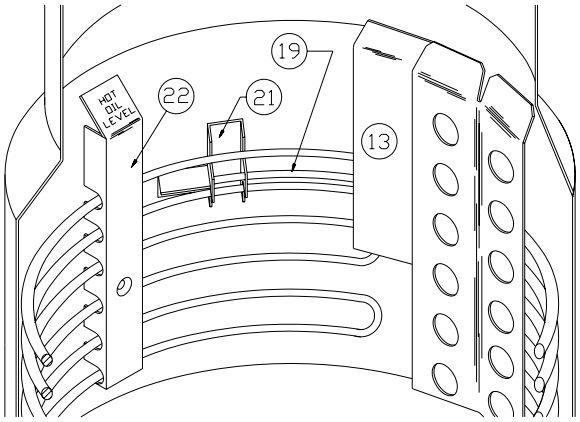
Replacement 1600/1800E:

1. See ACCESS FOR SERVICE.



2. Disconnect probe (18) wires.

3. OPEN cover. Drain cooking oil from cooking well. Close drain valve.

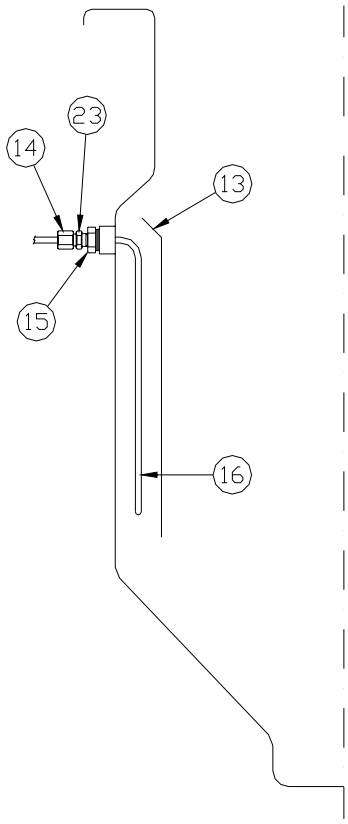


4. Remove capillary guard (13) inside of cooking well.

5. Remove basket guides (22) inside of cooking well.

6. With a dull tool such as a crescent wrench handle, pry top heating element inward far enough to slide bracket (21) away from temperature sensor probe (19). Note where probe bracket is located. Placement is important.

Continued:



7. Loosen compression nut (14).

8. Remove fitting (23) from outside of the cooking well. Leave reducer fitting (15) in place.

9. It may be necessary to move top heating element up or down slightly to get temperature sensor probe out from behind element.

10. Carefully pull probe out of cooking well.

11. Install new probe in the same location as old probe. Relocate probe bracket.

12. Use teflon tape new fitting (23) and tighten fitting (23) into fitting (15).

13. Tighten compression nut (14).

14. Reconnect red and yellow wires.

15. Replace controller, front panel and condensate pan.

16. Replace capillary guard and basket guides.

17. Return cooking oil to cooking well.

18. See CALIBRATION.

19. Cook a load and check for leaks.

20. Tighten smaller nut (14) if necessary.

Replacement (1800GH):

1. Follow steps 1 through 4 under Replacement (1600/1800E).

2. Loosen compression nut (14).

3. Remove fitting (23) from outside of the cooking well. Leave reducer fitting (15) in place.

4. It may be necessary to move top heating element up or down slightly to get temperature sensor probe out from behind element.

5. Carefully pull probe out of cooking well.

6. Install new probe in the same location as old probe. Relocate probe bracket.

7. Use teflon tape new fitting (23) and tighten fitting (23) into fitting (15).

8. Tighten compression nut (14).

9. Reconnect red and yellow wires.

10. Replace controller, front panel and condensate pan.

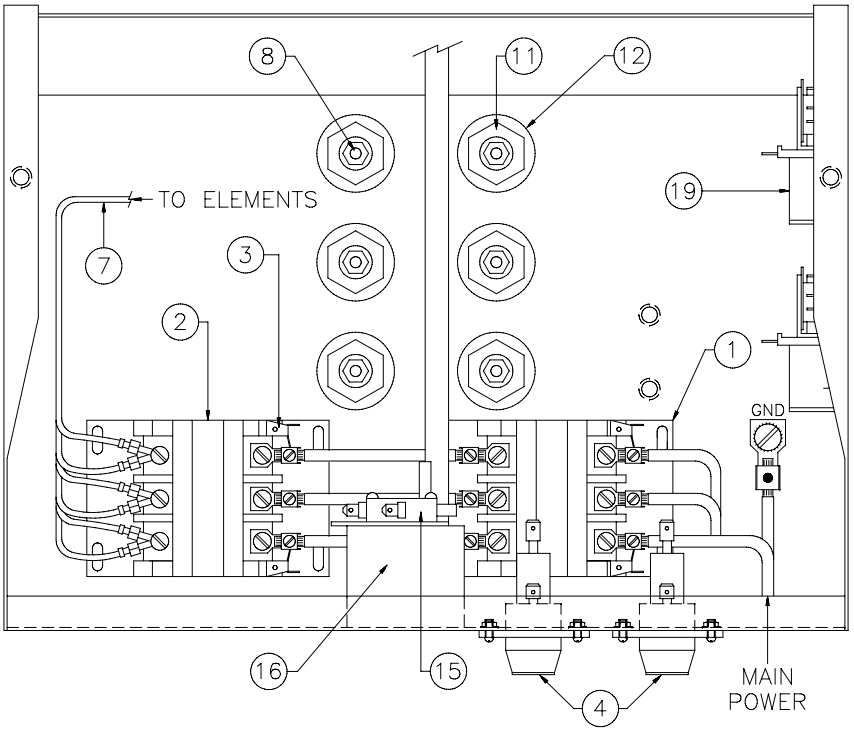
11. Replace capillary guard and basket guides.

12. Return cooking oil to cooking well.

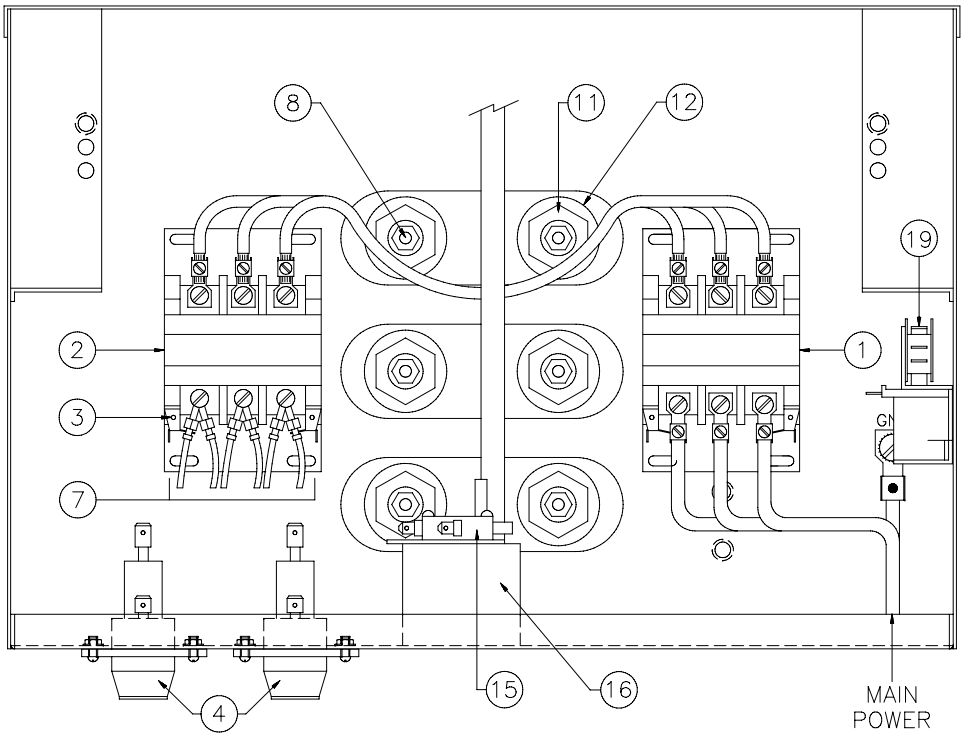
13. See CALIBRATION.
14. Cook a load and check for leaks.
15. Tighten smaller nut (14) if necessary.

5 - POWER INPUT BOX

1600 Pressure Fryer:



1800E Pressure Fryer:



CONTACTORS (1600/1800E)

Primary contactor (1) is controlled by the cook/filter switch. This contactor opens if hi-limit opens. Secondary contactor (2) is controlled by the thermostat control (1600 mechanical) or the solid state controller.

1. See ACCESS FOR SERVICE.

CAUTION: Check oil level before turning cook/filter switch to COOK.

2. Connect main power supply.

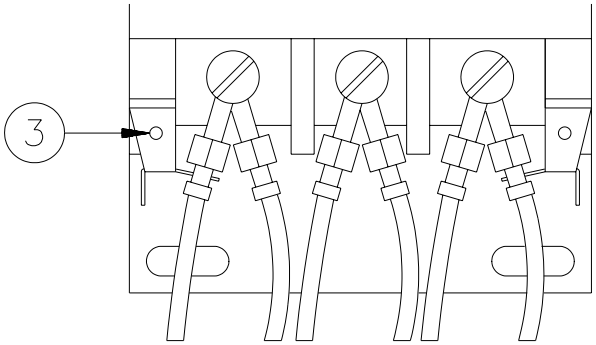
3. Turn cook/filter switch to COOK. You should hear an audible snap followed by another shortly after the first.

4. Check voltage through primary contactor (1) using a voltmeter. For single phase, check across two outside connections opposite applied voltage wires. Meter should indicate 208 or 240 volts. For three phase, check across any two of three connections. Meter should indicate 208 or 240 volts across all combinations. If not, cook/filter switch, contactor, main power supply, hi-limit open or power cord may be faulty.

5. Check voltage between any two of the three connections opposite element wires on secondary contactor (2). Any great drop in voltage indicates a poor connection or dirty contact within the contactor.

6. Secondary contactor (2) will close when HEAT ON light is illuminated. Make same checks as in step 4 between any two of the three connections on element wire side of contactor. Any drop in voltage indicates a poor or dirty contact within the contactor.

7. Disconnect main power supply.



8. If either contactor will not close electrically, check coil (3) with an ohmmeter. With needle nose pliers, disconnect wire(s) from one side of the coil. Meter should indicate a closed circuit. If not, coil is faulty.

Replacement:

1. See ACCESS FOR SERVICE.

2. Remove all wires from the contactor.

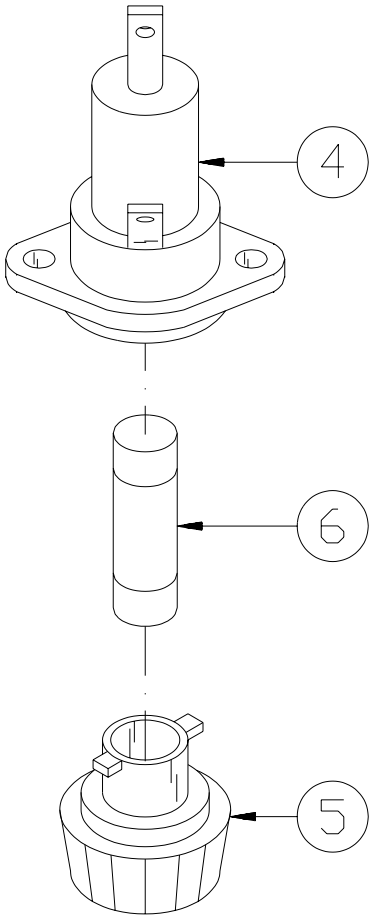
3. Remove two mounting screws. Remove contactor.

4. Install new contactor in reverse order. Be sure all wire connections are secure and in their original location. See wiring diagram.

FUSE (1600/1800E)

Two 15 amp fuses protect the control and filter circuits.

1. See ACCESS FOR SERVICE.



2. With needle nose pliers, disconnect wire(s) from one end of fuse holder (4).

3. Check between two terminals of fuse holder with an ohmmeter. Meter should indicate a closed circuit. If not, fuse may be faulty.

Fuse Replacement:

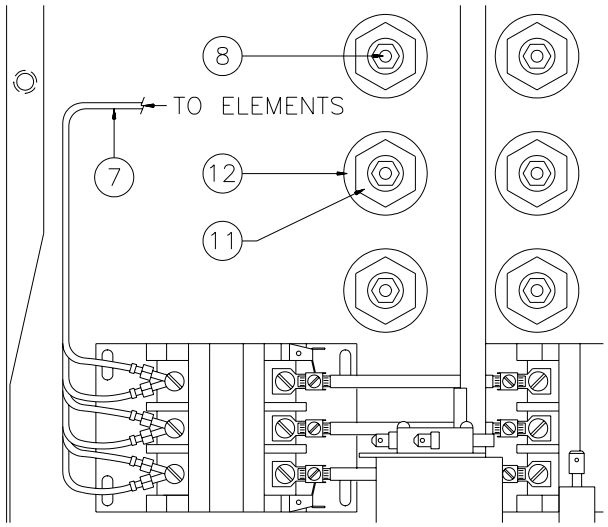
1. Remove end cap (5) and replace fuse (6).

HEATING ELELEMENTS (1600/1800E)

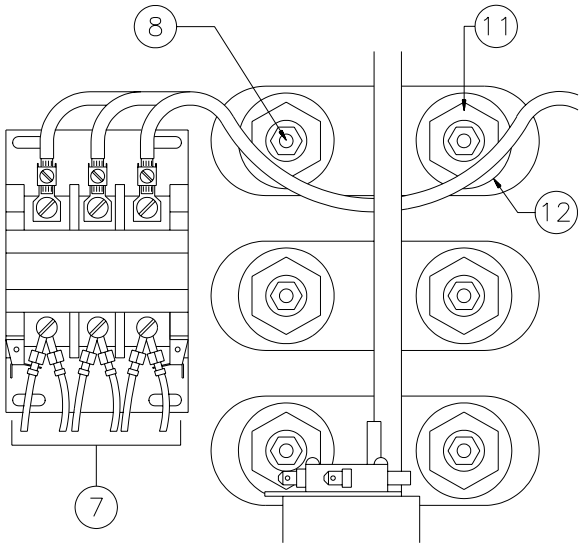
All elements heat the oil when thermostat (1600 mechanical) or the solid state controller calls for heat. If HEAT ON light is illuminated for long periods of time, this may indicate a faulty element or wire connection.

1. See ACCESS FOR SERVICE.

1600:



1800E:



Continued:

2. Disconnect one wire (7) from suspected element (8).

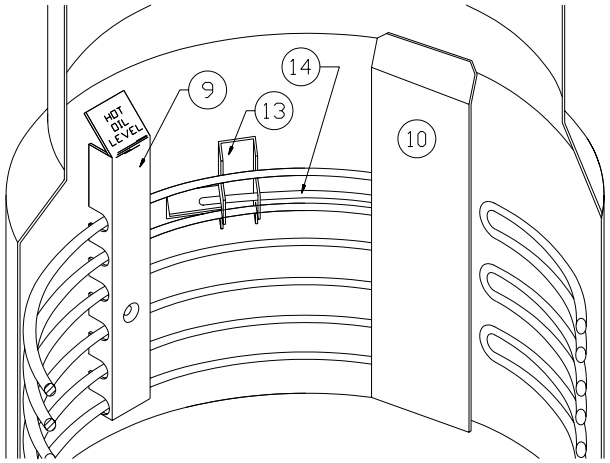
3. Check across two connections of element with an ohmmeter. Meter should indicate a closed circuit. If not, element is faulty.

Replacement:

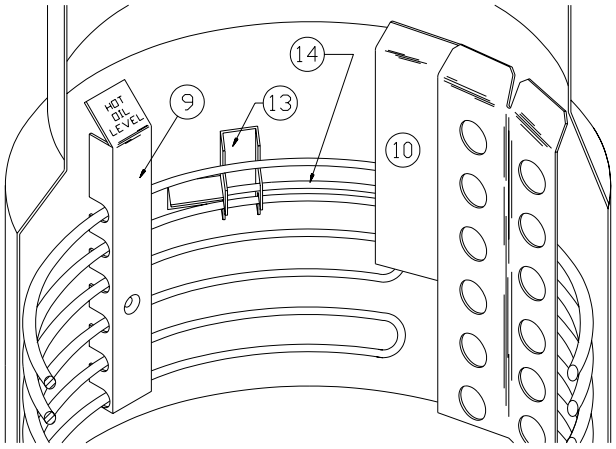
1. See ACCESS FOR SERVICE.

2. Drain cooking oil from the cooking well.

1600:



1800E:



3. Remove three brackets (9) from inside cooking well that secure elements to the cooking well.

4. Remove capillary guard (10).

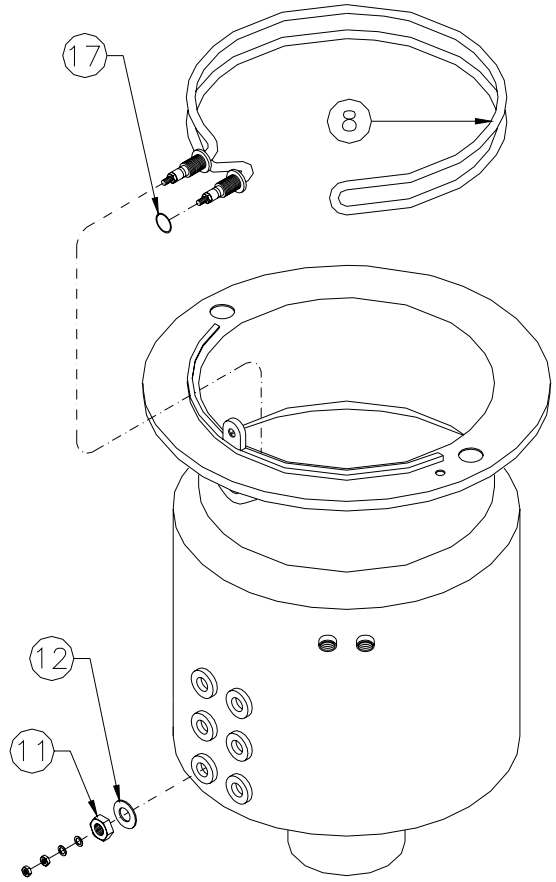
5. Remove element wires (7), large nut (11) and washer (12) from element(s).

6. To remove bottom or center element, remove element or elements above it.

7. Position element to allow removal of probe bracket (13). Lightly pry inward on top element if necessary. Slide probe bracket off the temperature sensor probe (14).

Continued:

8. From inside the cooking well, slide element out and lift on end to remove. Squeeze slightly to clear neck of cooking well.



9. Install new element (8) in reverse order. Use new O-rings (17) located between element and inside of the cooking well.

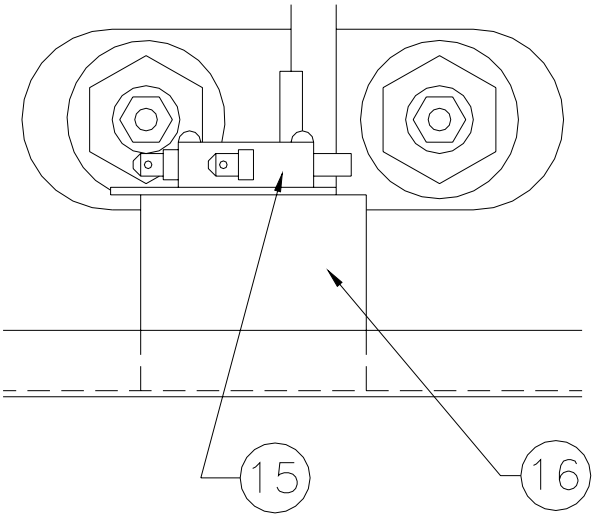
10. Install large element nut and tighten.

11. Be sure all wire connections are secure and in their original location.

LIMIT SWITCH

When the pressure regulating valve is CLOSED, switch supplies power to the timing circuit.

1. See ACCESS FOR SERVICE.



2. With needle nose pliers, disconnect one wire from the switch (15).

3. CLOSE pressure regulating valve. Check between remaining wire and terminal where other wire was disconnected with an ohmmeter. Meter should indicate a closed circuit. If not, mounting bracket is out of adjustment or switch is faulty.

Adjustment:

1. See ACCESS FOR SERVICE.

2. With pliers, bend mounting bracket (16) closer or further away from control rod.

Replacement:

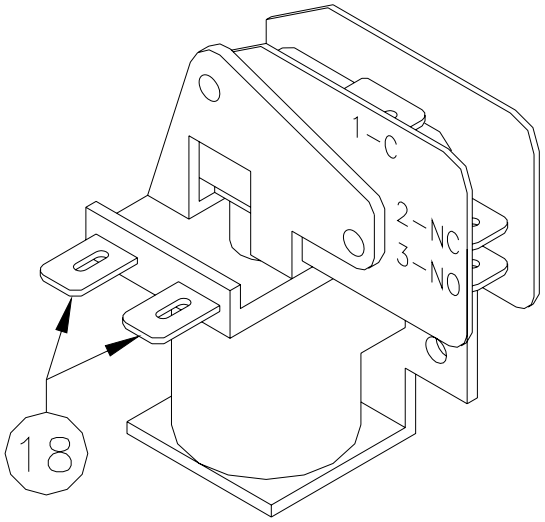
1. See ACCESS FOR SERVICE.
2. Remove wires from switch.
3. Remove two mounting screws.
4. Install new switch in reverse order. Be sure all wire connections are secure and in their original location.

RELAY (1600/1800E)

If C1 contactor is faulty, the relay circuit prevents the unit from being turned on after it has been turned off. In this condition, the filter motor will operate normally.

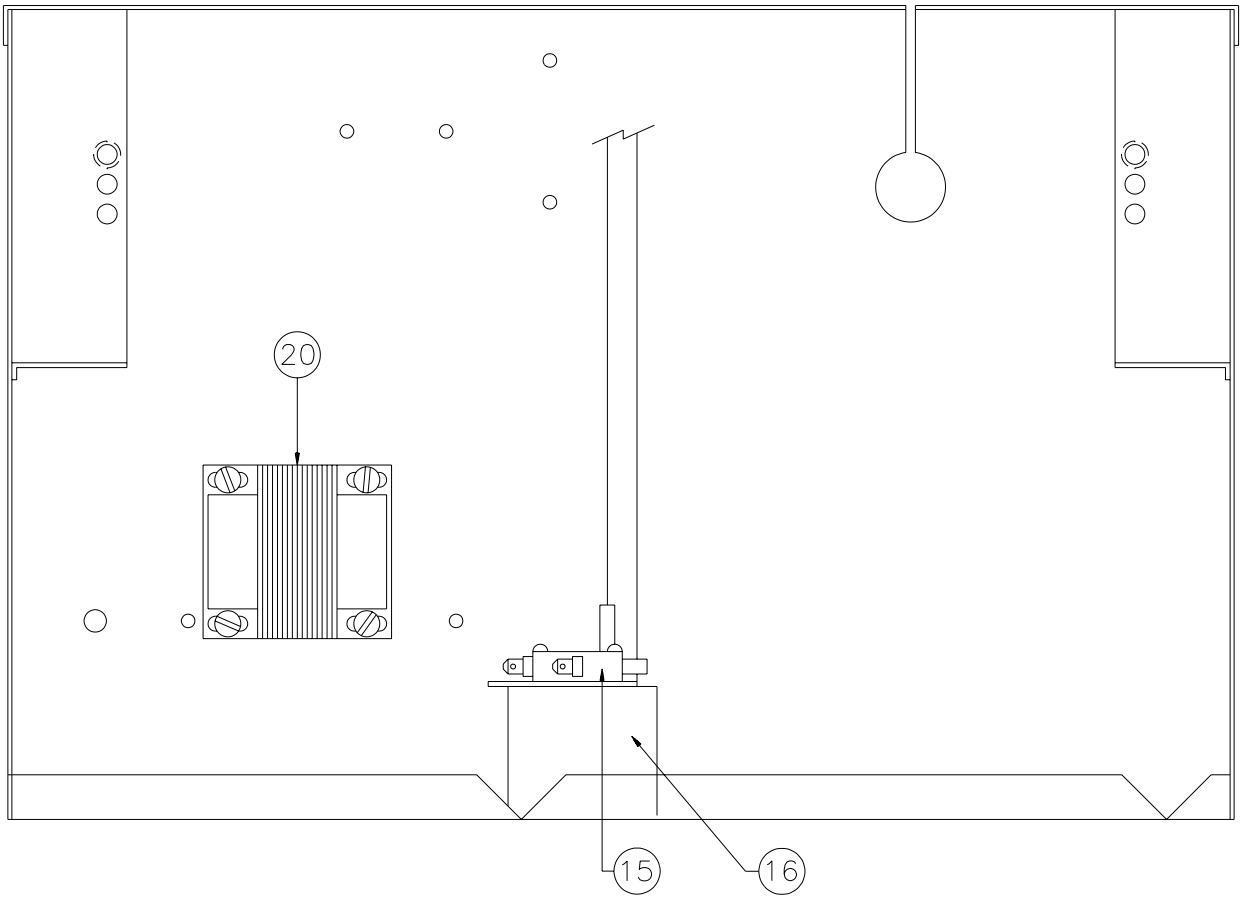
If the unit is off and the POWER ON light is illuminated, replace C1 contactor. See CONTACTORS (1600/1800E).

1. See ACCESS FOR SERVICE.



2. With needle nose pliers, disconnect wire from 1-C.
3. Check between 1-C and 2-NC with an ohmmeter. Meter should indicate an closed circuit. If not, relay is faulty.
4. Check between 1-C and 3-NO with an ohmmeter. Meter should indicate a open circuit. If not, relay is faulty.
5. With needle nose pliers, disconnect one wire from the coil (18).
6. Check between coil connections with an ohmmeter. Meter should indicate a closed circuit. If not, coil is faulty.

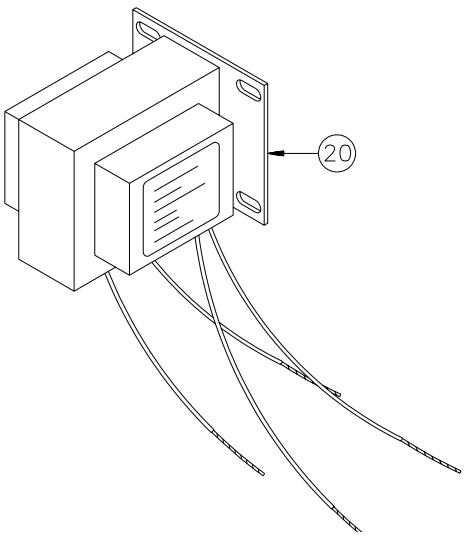
1800GH Pressure Fryer:



TRANSFORMER (1800GH)

The transformer (20) supplies power to the gas control valve.

1. See ACCESS FOR SEVICE.

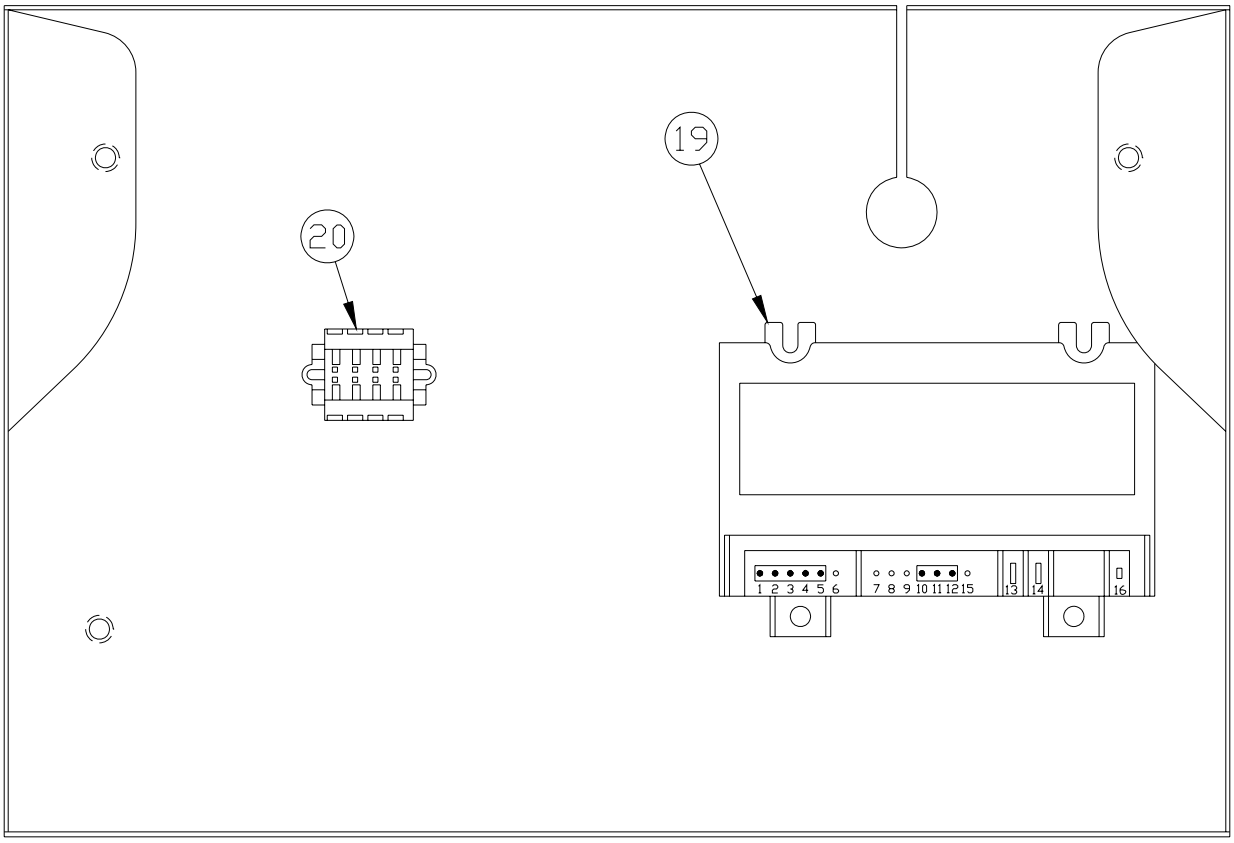


2. Disconnect one wire from the primary (black and white wires) side and secondary (yellow and blue wires) side of the transformer.

3. Check between the two primary wires with an ohmmeter. Meter should indicate a closed circuit, If not, transformer is faulty.

4. Check between the two secondary wires with an ohmmeter. Meter should indicate a closed circuit. If not, transformer is faulty.

1800GHCE Pressure Fryer:



POWER INPUT BOX(1800GHCE)

Ignition control (19) operates the gas valve solenoids and lights pilot burner.

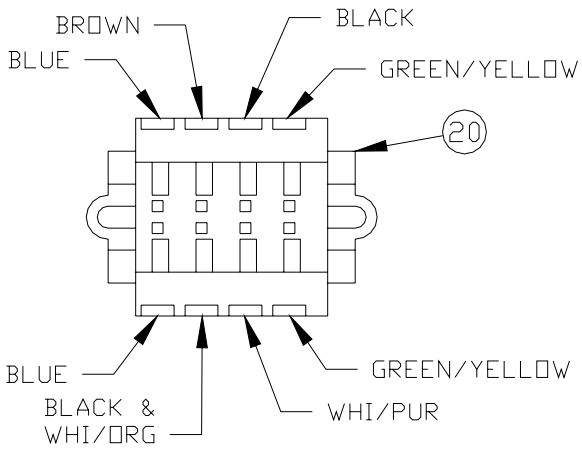
Note: Be sure polarity in main power supply is not reversed. If it is, pilot burner will ignite but the flame sensor will not produce enough microvolts to verify a pilot flame. As a result, the gas valve will not open.

1. See ACCESS FOR SERVICE.

2. Connect main power supply.

3. Colors indicated below come from wire harness attached to the gas valve.

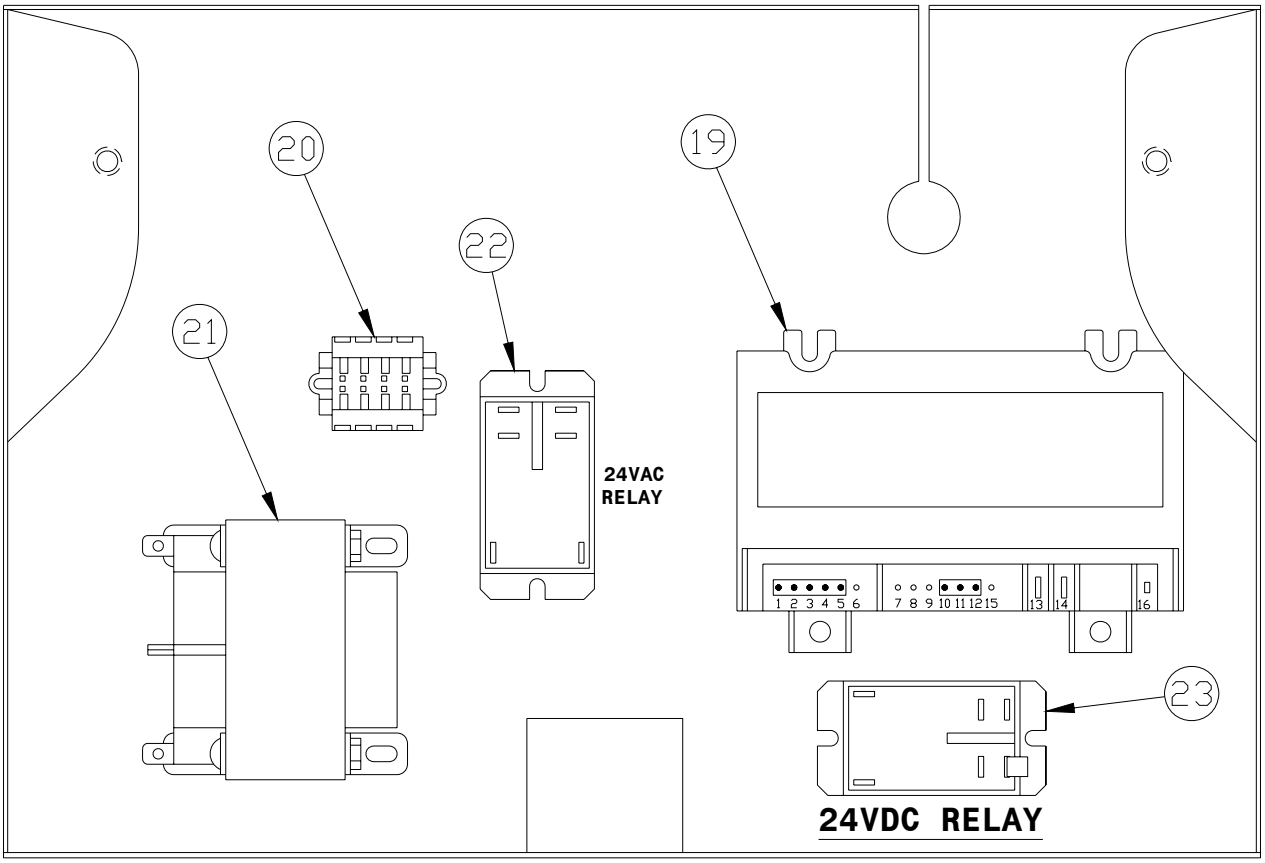
4.Turn cook/filter switch to COOK. With HEAT ON light illuminated, check voltage across blue and black at the terminal block (20) with a voltmeter. Meter should indicate applied voltage. If not, check voltage supply, loose connections, or ignition control is faulty.



Continued

5.With heat on light illuminated, check voltage across blue and brown at the terminal block (20) with a voltmeter. Meter should indicate applied voltage. If not, check voltage supply, loose connections, or ignition control is faulty.

1800GHUK Pressure Fryer for the United Kingdom:



POWER INPUT BOX(1800GHUK)

Ignition control (19) operates the gas valve solenoids and lights pilot burner.

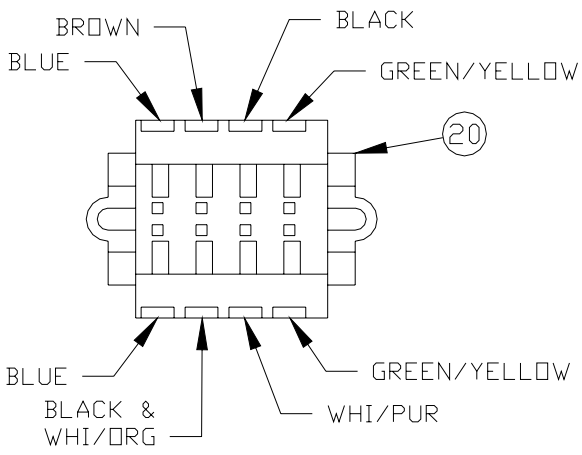
Note: Be sure polarity in main power supply is not reversed. If it is, pilot burner will ignite but the flame sensor will not produce enough microvolts to verify a pilot flame. As a result, the gas valve will not open.

1. See ACCESS FOR SERVICE.

2. Connect main power supply.

3. Colors indicated below come from wire harness attached to the gas valve.

4.Turn cook/filter switch to COOK. With HEAT ON light illuminated, check voltage across blue and black at the terminal block (20) with a voltmeter. Meter should indicate applied voltage. If not, check voltage supply, loose connections, or ignition control is faulty.



Continued

5.With heat on light illuminated, check voltage across blue and brown at the terminal block (20) with a voltmeter. Meter should indicate applied voltage. If not, check voltage supply, loose connections, or ignition control is faulty.

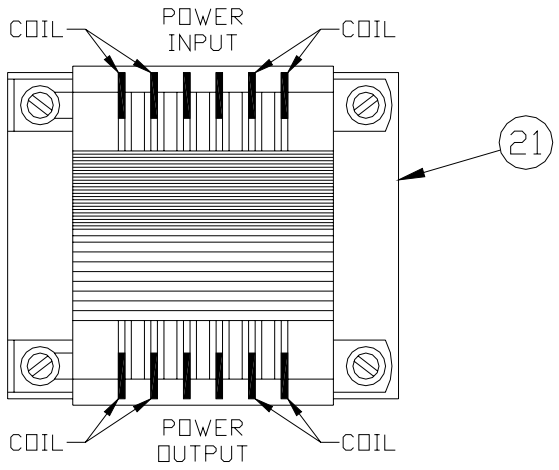
TRANSFORMER

The transformer (21) supplies 24 volts AC to both relay coils, power on light, cook/filter switch, and solid state controller.

1. See ACCESS FOR SERVICE.

2. With needle nose pliers, disconnect wire(s) from suspected coil.

3. Check across coil with an ohmmeter. Meter should indicate a closed circuit. If not, transformer is faulty.



Replacement:

1. See ACCESS FOR SERVICE.

2. Remove all wires from transformer.

3. Remove mounting screws and remove transformer.

4. Install new transformer in reverse order. Be sure all wire connections are secure and in their original location. See wiring diagrams.

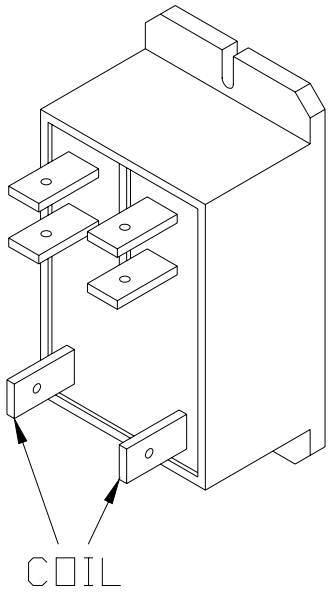
RELAYS

Relay (23) 24VDC coil is energized when the solid state controller calls for heat. 220 volts is then supplied to the ignition module (19). Relay (22) 24VAC coil is energized when cook/filter switch is turned to FILTER. 220 volts is then supplied to the filter motor.

1. See ACCESS FOR SERVICE.

2. With needle nose pliers, disconnect wire(s) from one side of the coil.

3. Check across coil with an ohmmeter. Meter should indicate a closed circuit. If not, relay is faulty.



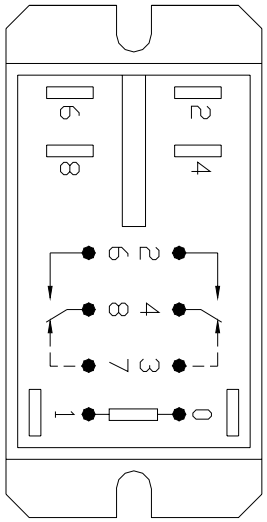
4. Replace coil wire(s).

CAUTION: Check oil level before turning cook/filter switch to COOK.

5. Connect main power supply.

Continued

6. Turn cook/filter switch to COOK to check relay (23). You should hear a faint audible snap when HEAT ON light illuminates. Turn switch to FILTER to check relay (22). Check across terminals 2 & 6 and 4 & 8 using a voltmeter. Meter should indicate applied voltage. If not, check for loose connections, or relay is faulty.



Replacement:

1. See ACCESS FOR SERVICE.

2. Remove all wires from relay.

3. Remove two mounting screws from relay.

4. Install new relay in reverse order. Be sure all wire connections are secure and in their original location. See wiring diagrams.

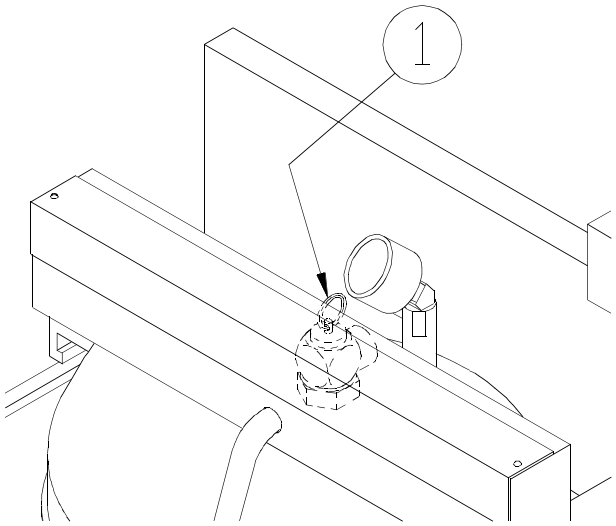
6 - COVER AND YOKE

PROPER COVER OPERATION

- Never use force to OPEN the cover. OPEN only when no pressure is present in the cooking well.

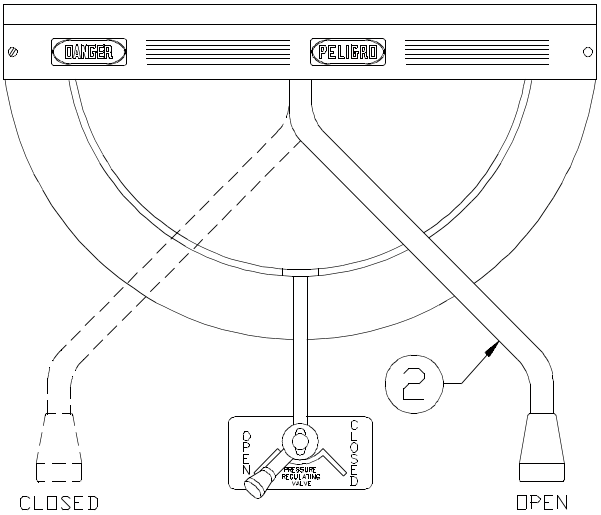
- If cover will not open easily, be sure the pressure regulating valve is OPEN. If cover will not OPEN, turn cook/filter switch OFF.

WARNING: Keep away from safety relief valve opening without heat and steam protective apparel . Escaping steam could cause serious burns.

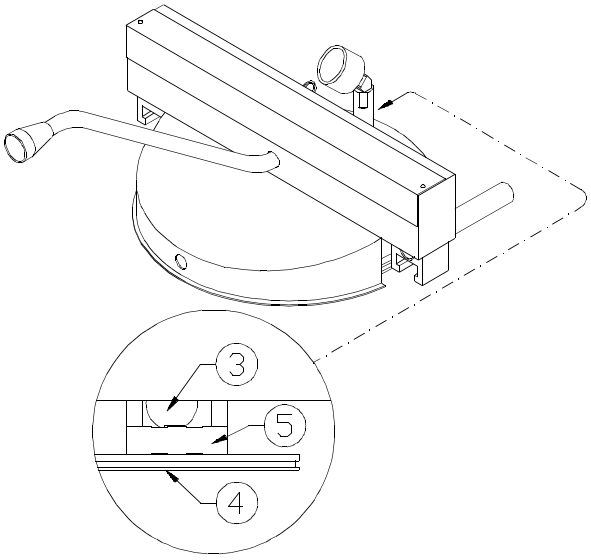


- Using a hot mitt, lift safety relief valve (1) handle. If pressure is released, do not attempt to open the cover. Do not attempt to operate the unit until it has been serviced.

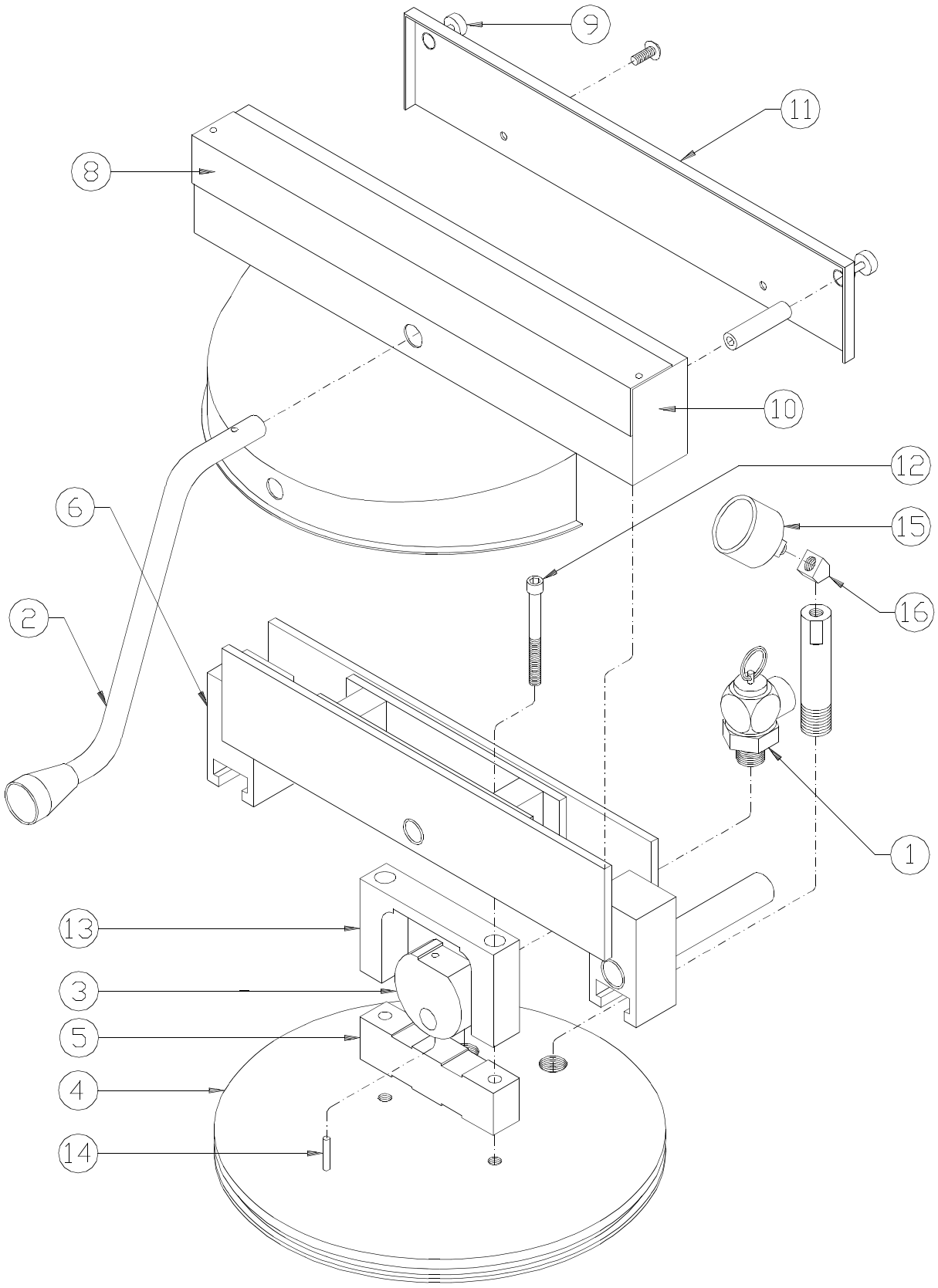
Note: Always fully rotate cover handle (2) OPEN or CLOSED.



To CLOSE cover, slide cover forward then rotate the handle (2) counterclockwise. To OPEN cover, push down on cover handle then slowly rotate the handle clockwise. Slide cover toward the rear of the unit.



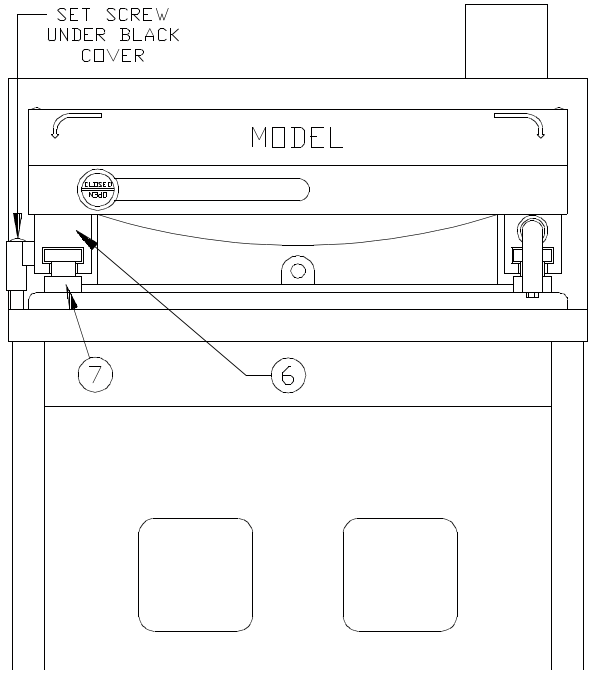
When handle is rotated, cam (3) moves cover (4) in or out of the cooking well. Cam and spacer block (5) lock the cover when pressure in cooking well pushes up on the cover.


9
11
8
10
12
6
15
16
2
1
13
3
5
4
14

ADJUSTMENTS

Height Adjustment:

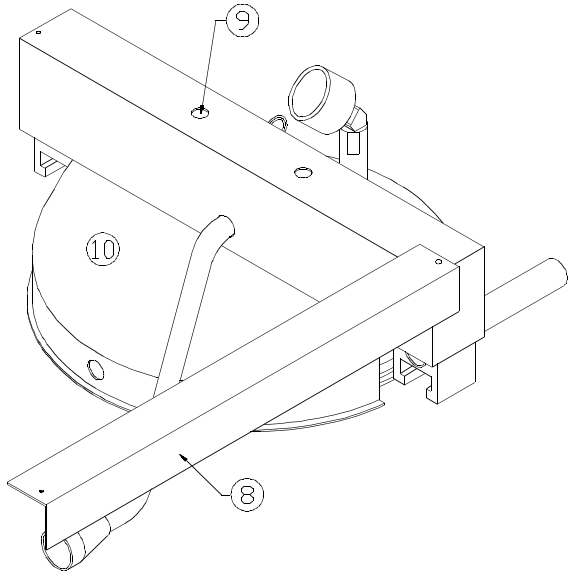
Proper alignment of the left side yoke latch (6) and latch column (7) is essential. Remove black cover and turn set screw in or out to raise or lower the yoke latch.



Centering Cover:

This is important for prevention of steam leaks and keeping O-ring wear to a minimum.

Note: It is important warning sign (8) be placed back into its original position and screw replaced after making this adjustment. If this sign becomes worn or illegible, it must be replaced immediately.



1. Remove screw from left side of warning sign (8) and swing out toward the right.

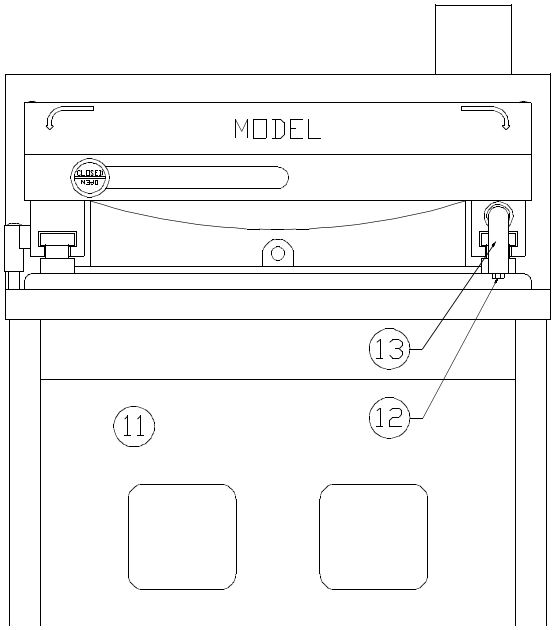
2. Loosen but do not remove two cover bolts (9) in top of splash shield (10).

3. Open and close cover several times in cooking well to let cover seek its own center. With cover in CLOSED position, tighten each cover bolt a little at a time while alternating between the two.

REMOVAL

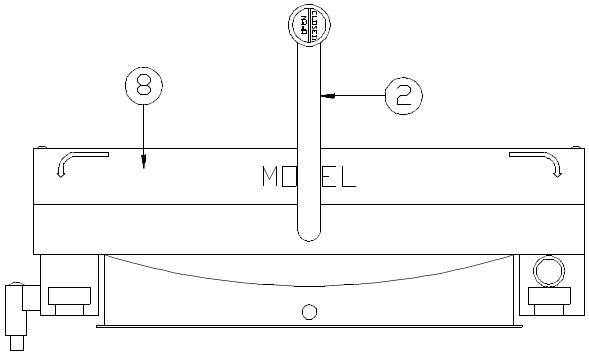
To remove complete cover and yoke assembly:

1. OPEN cover and push assembly to the rear. CLOSE cover so it rests on the counter top.



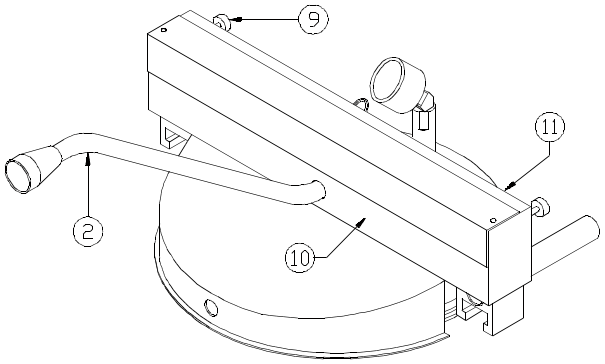
2. Remove front panel (11). Remove bolt (12) from bottom of slide rod, remove bolt from back of slide rod (1600) and remove rod (13). Complete assembly can now be removed from the unit.

DISASSEMBLY



Note: If warning sign (8) becomes worn or illegible, it must be replaced immediately.

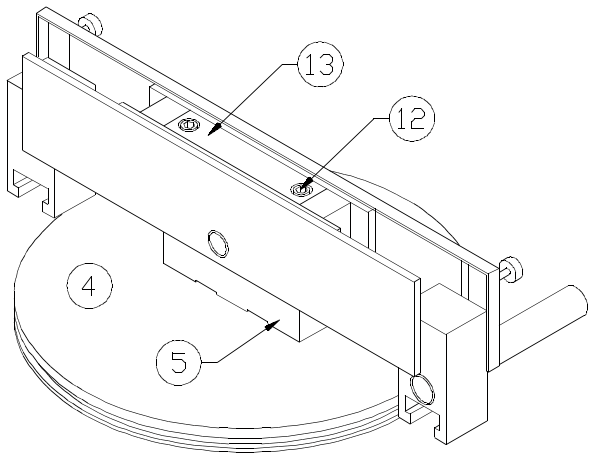
1. Rotate cover handle (2) to a centered position.



2. Loosen screws (9) attaching splash guard (10) to back panel assembly (11).

3. Slide splash guard (10) forward and up towards the end of the cover handle (2).

Continued:

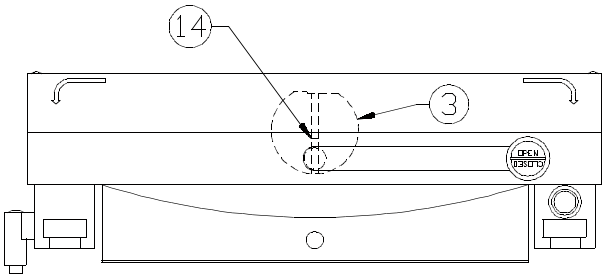


4. Remove two cover bolts (12).

5. Lift yoke bar up. The cover (4) and spacer block (5) will remain.

6. Remove lifter box (13).

7. Rotate cover handle to the OPEN position.



8. Locate grooved pin (14) hole in the flat of the cam (3).

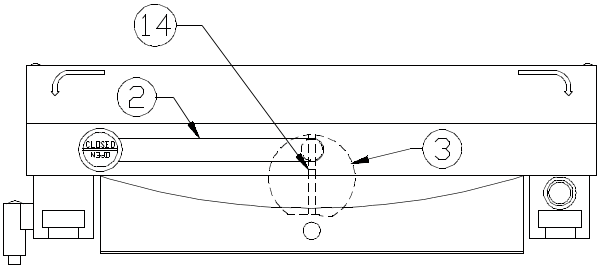
Note: Be sure to note how the handle and cam are removed. Use a stiff wire to tie the handle and cam together after removal.

9. Use a 1/8 inch punch to remove grooved pin. Remove handle and cam.

10. Clean lifter box, handle, cam and yoke bar where lifter box slides up and down.

ASSEMBLY

1. Install cam (3) into yoke bar.



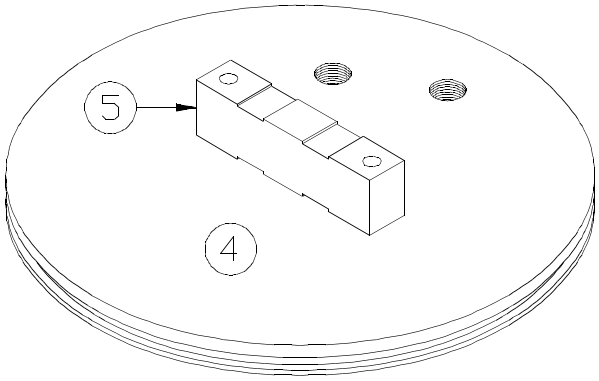
2. Install handle (2) through splash guard, into yoke bar then into the cam.

3. Align holes in handle and cam then install a new grooved pin (14). Be sure the grooved pin is installed flush with the cam.

4. Lubricate inside of yoke bar where lifter box slides up and down.

5. Lubricate lifter box then install lifter box into the yoke bar.

6. Lower assembly over the cover (4) and spacer block (5).



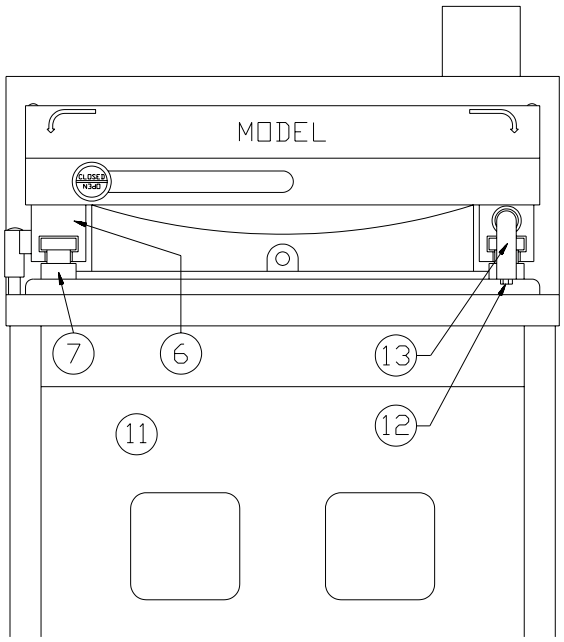
Continued:

6. Rotate cover handle to the CLOSED position.

8. Align holes in lifter box, spacer block and cover.

9. Install new cover bolts but do not tighten.

10. Install slide rod through bearings on right hand side of yoke bar.



11. Place assembly onto counter top. Place slide rod (13) into the rear support, install bolt into front of the slide rod and install bolt on back of slide rod (1600).

12. Pull cover forward. If yoke latch (6) and latch columns (7) do not line up, adjust slide rod (13) to the left or right.

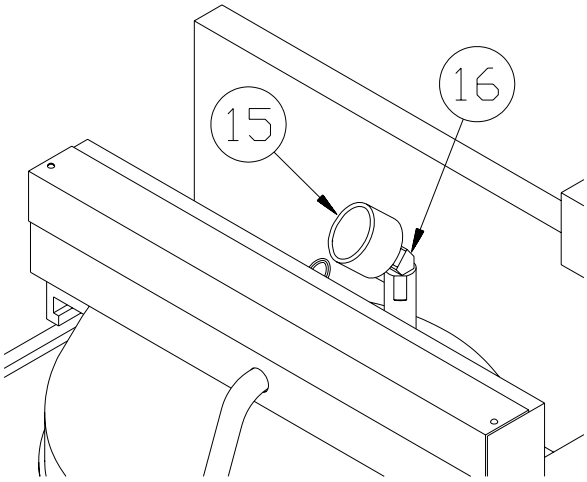
13. Center cover within the cooking well. See **Centering Cover**.

PRESSURE GAUGE

Gauge indicates pressure within the cooking well. Operating pressure is 12-14 PSI.

Replacement:

1. OPEN the pressure regulating valve then the cover.



2. Unscrew gauge (15) from the elbow (16).

3. Use teflon tape on the threads. Screw new gauge onto the elbow.

SAFETY RELIEF VALVE

The safety relief valve opens in the event pressure in the cooking well meets relief pressure rating of the valve. DO NOT alter or attempt to repair this valve.

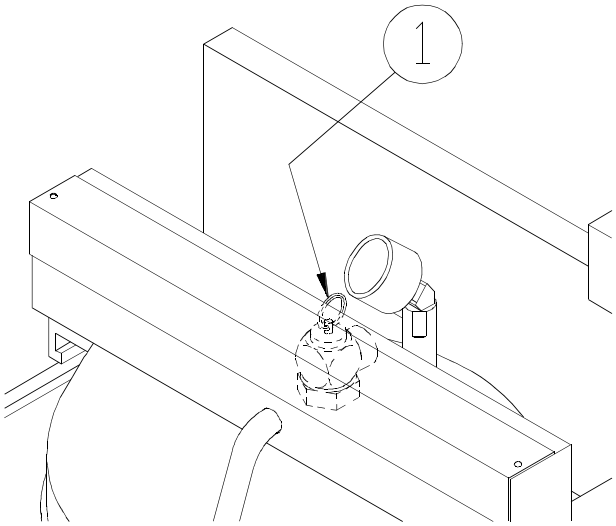
WARNING: Keep away from safety relief valve opening without heat and steam protective apparel. Escaping steam could cause serious burns.

1. See PROPER COVER OPERATION.

Replacement:

Note: Replacement valve must have a 15 PSI relief pressure.

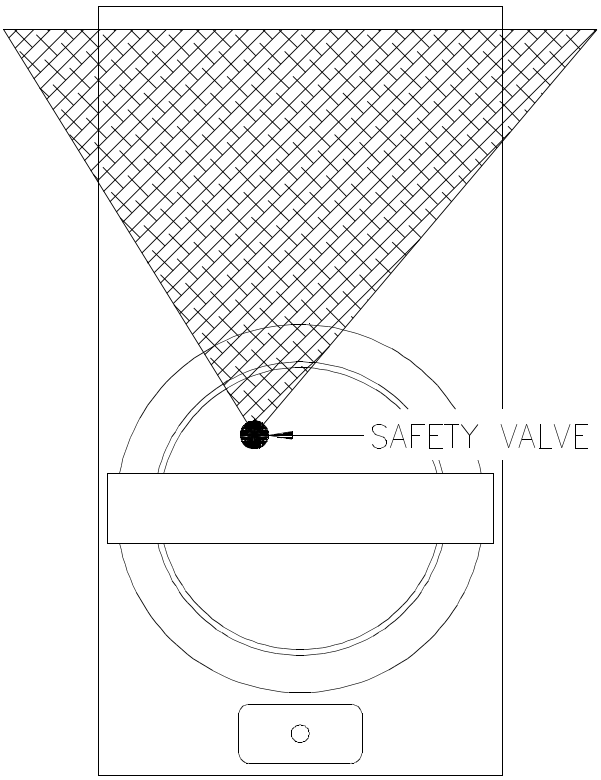
1. OPEN cover and pressure regulating valve.



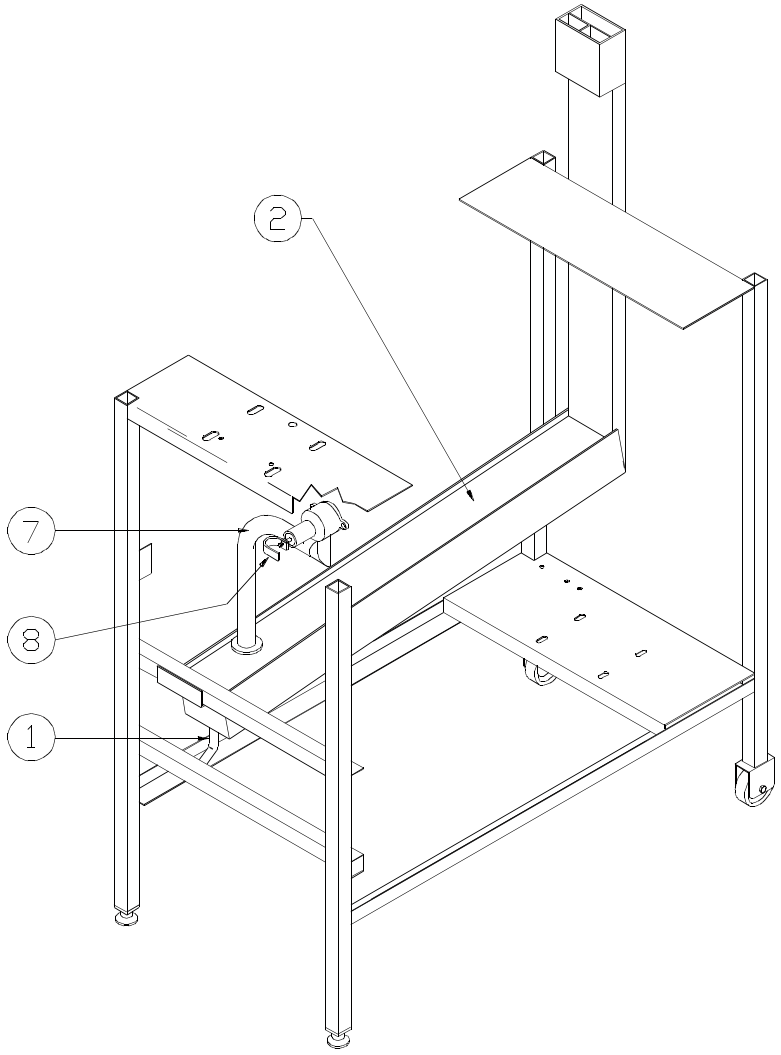
2. Unscrew valve (1) from the cover.

Note: DO NOT install valve discharge opening in the direction of foot traffic areas.

3. Apply teflon tape to threads. Screw new valve into the cover with valve discharge opening facing the rear, at an angle, away from foot traffic as shown below.



7 - 1600 PRESSURE SYSTEM

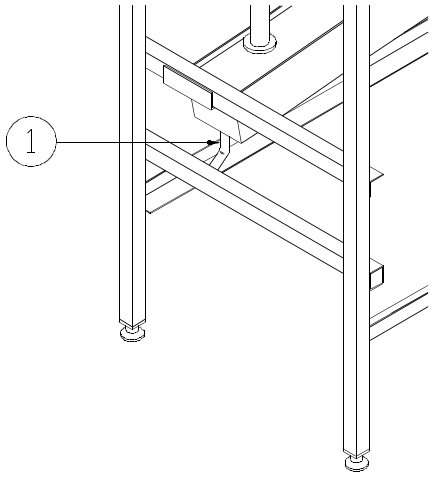


DANGER: DO NOT attempt to tighten, repair, or replace any fitting, line or component unless main electric power is disconnected, pressure regulating valve is OPEN and cooking oil has cooled. Hot oil could spray out under pressure causing serious burns.

The following operator habits may cause the pressure system to become faulty:

- Overfilling cooking well with oil: See operation manual for correct oil level.
- Overloading basket with product: Oil level will raise too high.
- Breading then dropping: Excess coating can collect in pressure regulating valve and exhaust tank. See operation manual for coating instructions.
- Opening pressure regulating valve quickly at the end of a cooking cycle: Excess coating can collect in pressure regulating valve and exhaust tank.

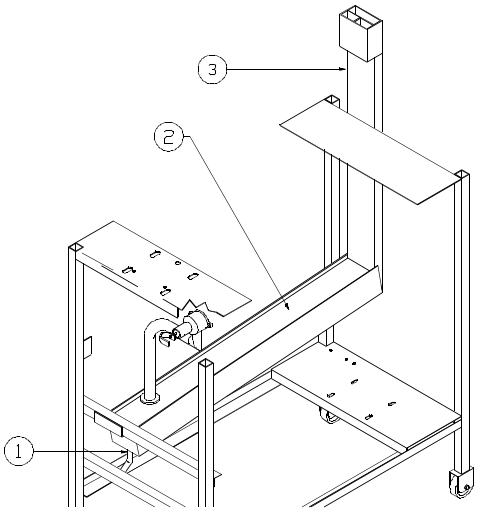
EXHAUST DRAIN TUBE



Tube (1) drains condensation from exhaust tank into the condensate pan.

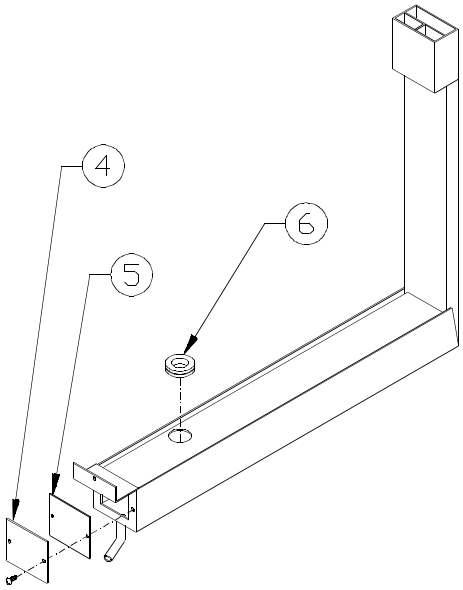
EXHAUST TANK

Steam and vapors are exhausted through this tank.



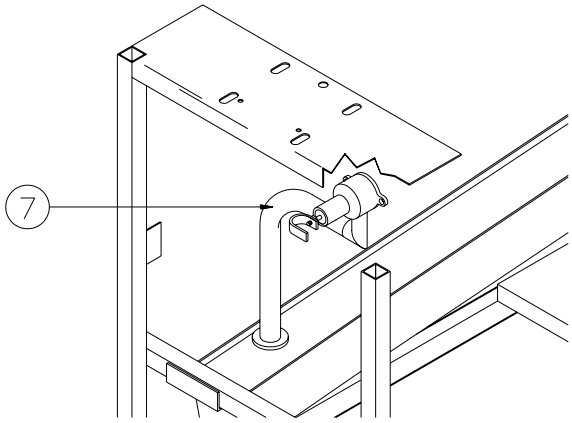
See previously mentioned operator habits. Tank (2) can become obstructed. The obstruction usually forms where exhaust drain tube (1) meets tank. Tank will then become filled with liquid. Liquid may be forced up the stack (3) when pressure is released at the end of a cooking cycle.

Cleaning:



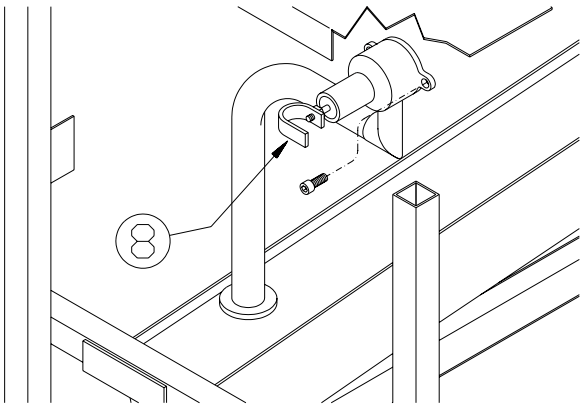
1. Remove two screws, cover (4) and seal (5) from tank..
2. Scrape inside of tank clean.
3. Replace seal (5) and grommet (6) if necessary.
4. Assemble in reverse order.

EXHAUST TUBE



Tube (7) directs steam and vapors from cooking well into the exhaust tank.

PRESSURE REGULATING VALVE

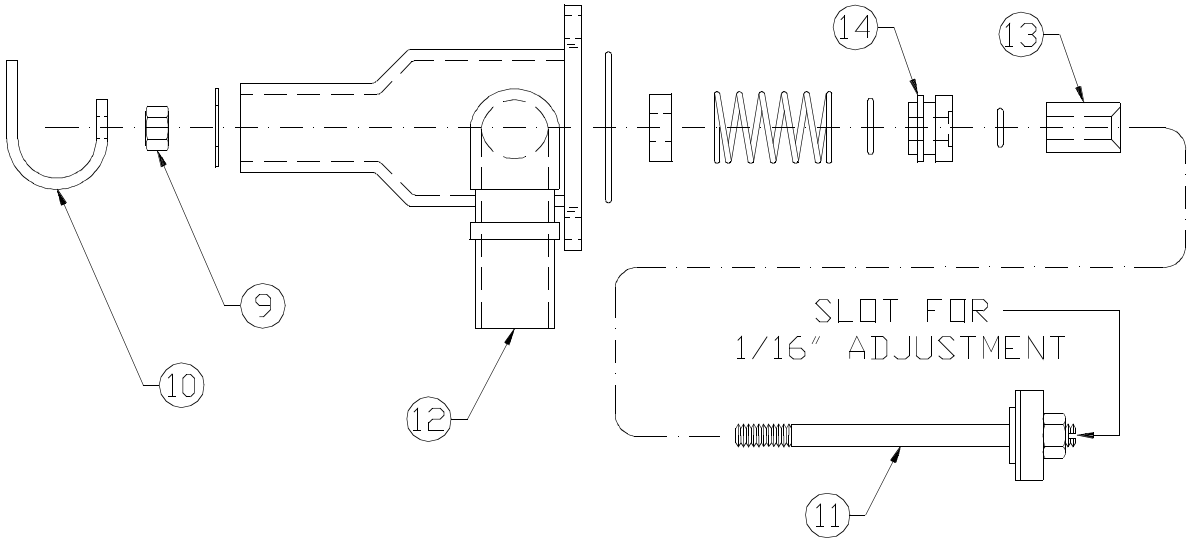


Valve (8) is preset to maintain a maximum pressure of 12-14 psi during a cooking cycle. Pressure may build slowly or remain low when cooking small loads. Add one or two quartered potatoes with product to help build and maintain maximum pressure.

Replacement:

1. Disconnect main electric power supply.
2. Slide right hand squeeze clamp, on valve outlet, to the left.
3. Pull silicone sleeve and exhaust tube (7) free of valve outlet.
4. Remove two allen screws mounting valve to the cooking well and remove valve.
5. See **Repair**.
6. Install silicone sleeve and exhaust tube onto the valve outlet.
7. Slide right hand squeeze clamp onto the valve outlet.

Repair:
Prior to SE6D100613

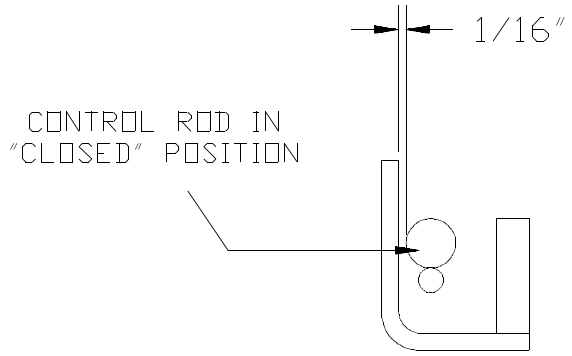


Use repair kit #11447.

1. Remove two allen screws which attach the valve assembly to the cooking well.
2. Remove valve from the unit.
3. Loosen locking nut (9) then remove valve control yoke (10) from the stem assembly (11).
4. Remove entire stem assembly from the housing (12) by pushing on threaded end of the stem assembly.
5. Remove all components from the stem assembly (11).
6. Clean then dry all metal components, not replaced, with hot water and a mild detergent.
7. Install new parts from the repair kit. Lubricate all O-rings and contacting surfaces with olive oil.

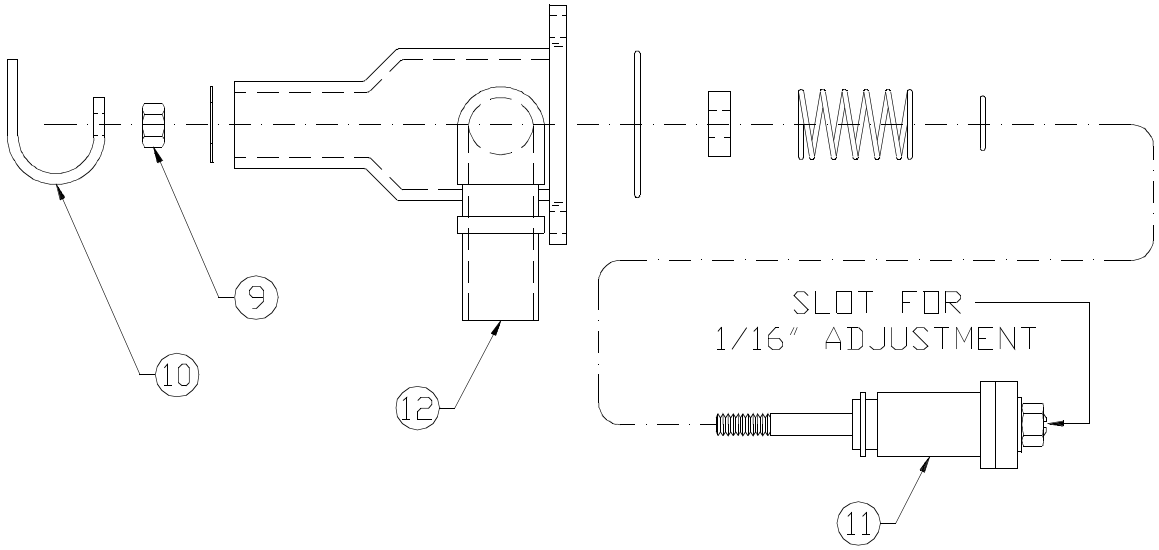
Note: Be sure flat end of spacer (13) is against piston (14).

8. Mount valve assembly back on cooking well with the allen screws.



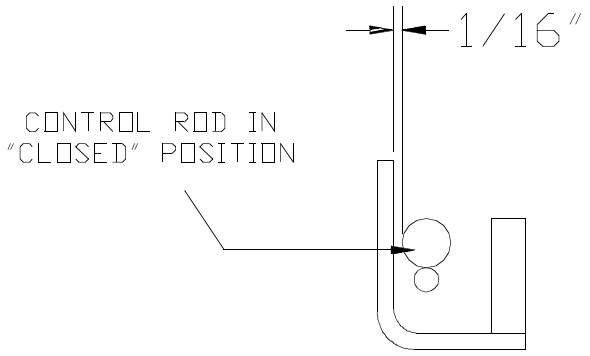
9. With control arm in the "CLOSED" position, a distance of 1/16" should be maintained between the control yoke (10) and control rod. While locking nut (9) is loose, adjust distance in the pressure port located on inside top of the cooking well. Using a screwdriver, turn stem assembly (11) either clockwise or counterclockwise to obtain this distance.
10. Tighten locking nut.

Repair:
Effective: SE6D100613



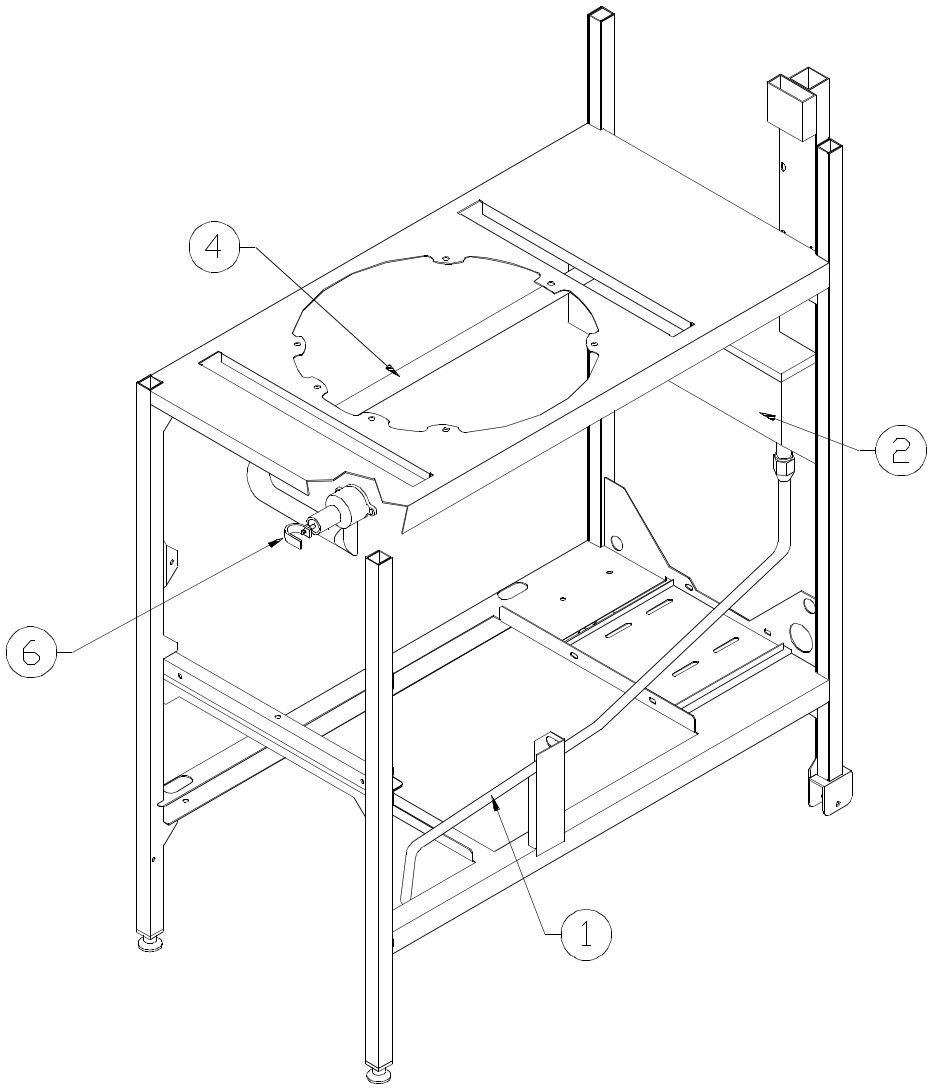
Use repair kit #15279.

1. Remove two allen screws which attach the valve assembly to the cooking well.
2. Remove valve from the unit.
3. Loosen locking nut (9) then remove valve control yoke (10) from the stem assembly (11).
4. Remove entire stem assembly from the housing (12) by pushing on threaded end of the stem assembly.
5. Remove all components from the stem assembly (11).
6. Clean then dry all metal components, not replaced, with hot water and a mild detergent.
7. Install new parts from the repair kit. Lubricate all O-rings and contacting surfaces with olive oil.
8. Mount valve assembly back on cooking well with the allen screws.



9. With control arm in the “CLOSED” position, a distance of 1/16” should be maintained between the control yoke (10) and control rod. While locking nut (9) is loose, adjust distance in the pressure port located on inside top of the cooking well. Using a screwdriver, turn stem assembly (11) either clockwise or counterclockwise to obtain this distance.
10. Tighten locking nut.

8 - 1800 PRESSURE SYSTEM

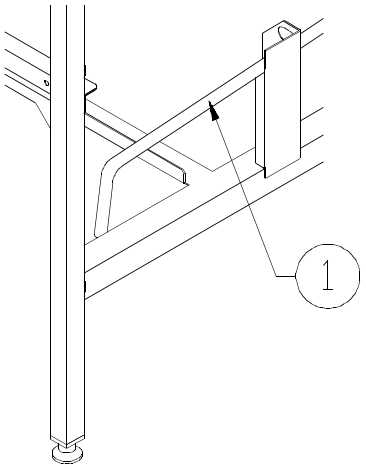


DANGER: DO NOT attempt to tighten, repair, or replace any fitting, line or component unless main electric power is disconnected, pressure regulating valve is OPEN and cooking oil has cooled. Hot oil could spray out under pressure causing serious burns.

The following operator habits may cause the pressure system to become faulty:

- Overfilling cooking well with oil: See operation manual for correct oil level.
- Overloading basket with product: Oil level will raise too high.
- Breading then dropping: Excess coating can collect in pressure regulating valve and exhaust tank. See operation manual for coating instructions.
- Opening pressure regulating valve quickly at the end of a cooking cycle: Excess coating can collect in pressure regulating valve and exhaust tank.

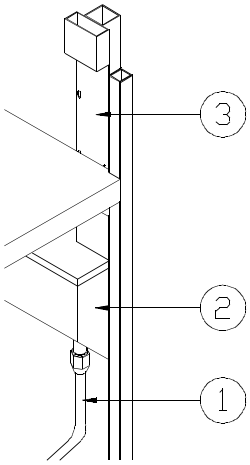
EXHAUST DRAIN TUBE



Tube (1) drains condensation from exhaust tank into the condensate pan.

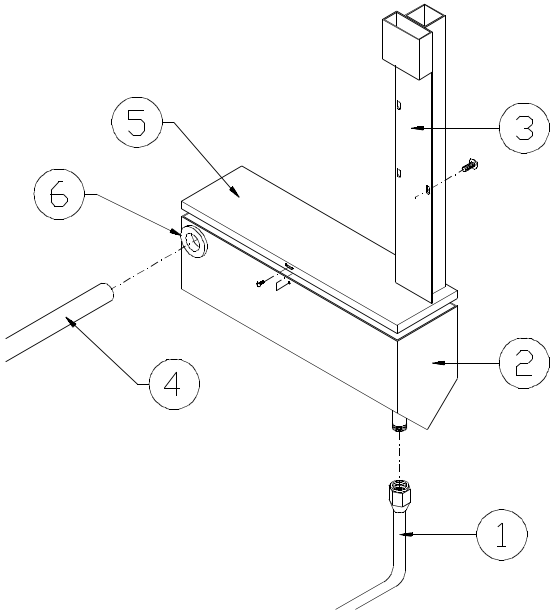
EXHAUST TANK

Steam and vapors are exhausted through this tank.



See previously mentioned operator habits. Tank (2) can become obstructed. The obstruction usually forms on the bottom of tank where exhaust drain tube (1) is connected. Tank will then become filled with liquid. Liquid may be forced up the stack (3) when pressure is released at the end of a cooking cycle.

Cleaning:



1. Remove exhaust drain tube (1) from bottom of the tank (2).

2. Remove two screws from the stack (3) which mounts tank to the unit.

3. Pull tank away from the frame. Exhaust tube (4) will separate from the tank.

4. Remove two screws holding cover (5) to the tank then remove cover. Remove rubber grommet (6) on side of the tank. Set the tank in a sink and clean thoroughly.

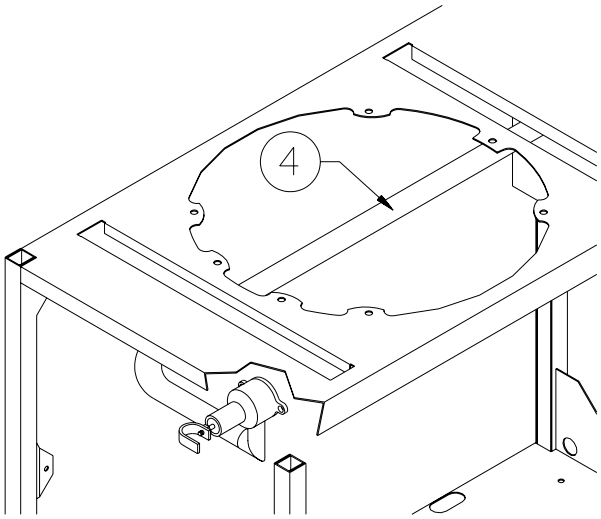
5. Clean silicone rubber from cover underside. Seal cover with silicone during assembly.

6. Clean all tubes.

7. Replace grommet (6) if necessary.

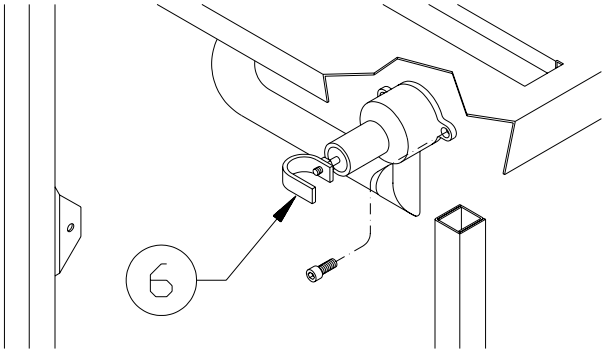
8. Assemble in reverse order.

EXHAUST TUBE



Tube (4) directs steam and vapors from cooking well into the exhaust tank.

PRESSURE REGULATING VALVE

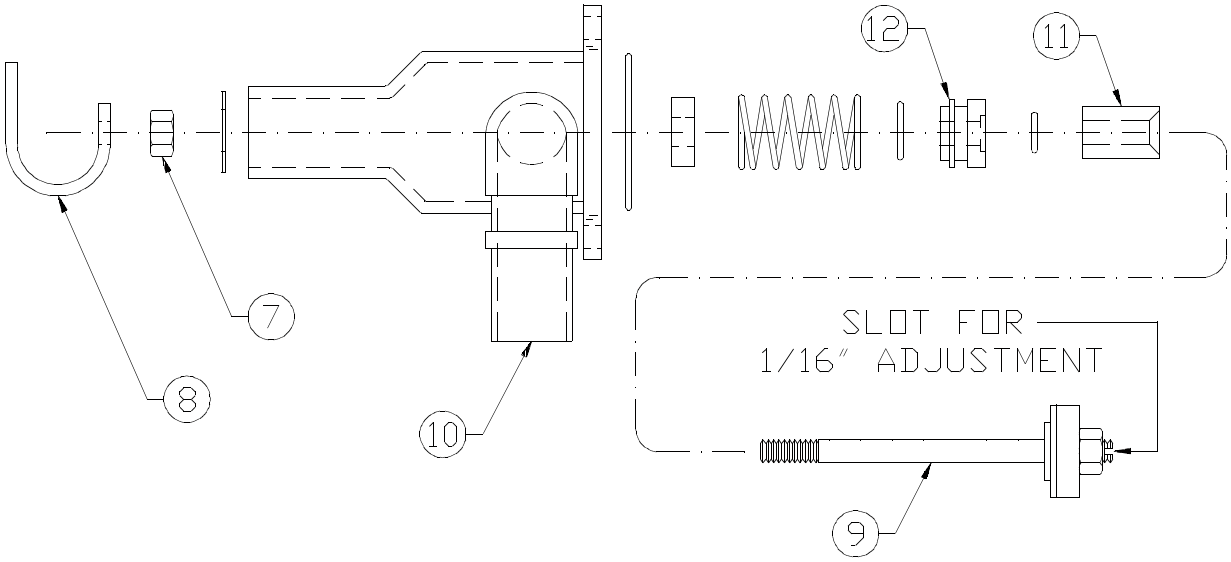


Valve (6) is preset to maintain a maximum pressure of 12-14 psi during a cooking cycle. Pressure may build slowly or remain low when cooking small loads. Add one or two quartered potatoes with product to help build and maintain maximum pressure.

Replacement:

1. Disconnect main electric power supply.
2. Slide right hand squeeze clamp, on valve outlet, to the left.
3. Pull silicone sleeve and exhaust tube (4) free of valve outlet.
4. Remove two allen screws mounting valve to the cooking well and remove valve.
5. See **Repair**.
6. Install silicone sleeve and exhaust tube onto the valve outlet.
7. Slide right hand squeeze clamp onto the valve outlet.

Repair:
Prior to SE8D101763 and SG8D100830

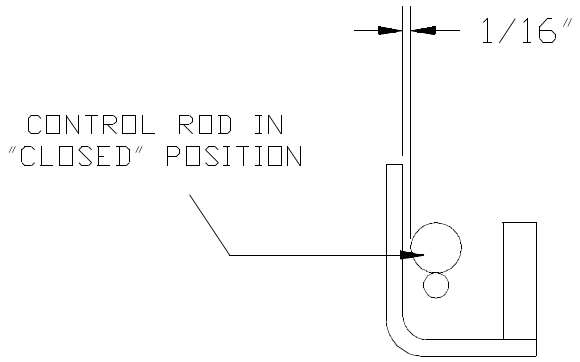


Use repair kit #11447.

1. Remove two allen screws which attach the valve assembly to the cooking well.
2. Remove valve from the unit.
3. Loosen locking nut (7) then remove valve control yoke (8) from the stem assembly (9).
4. Remove entire stem assembly from the housing (10) by pushing on threaded end of the stem assembly.
5. Remove all components from the stem assembly (9).
6. Clean then dry all metal components, not replaced, with hot water and a mild detergent.
7. Install new parts from the repair kit. Lubricate all O-rings and contacting surfaces with olive oil.

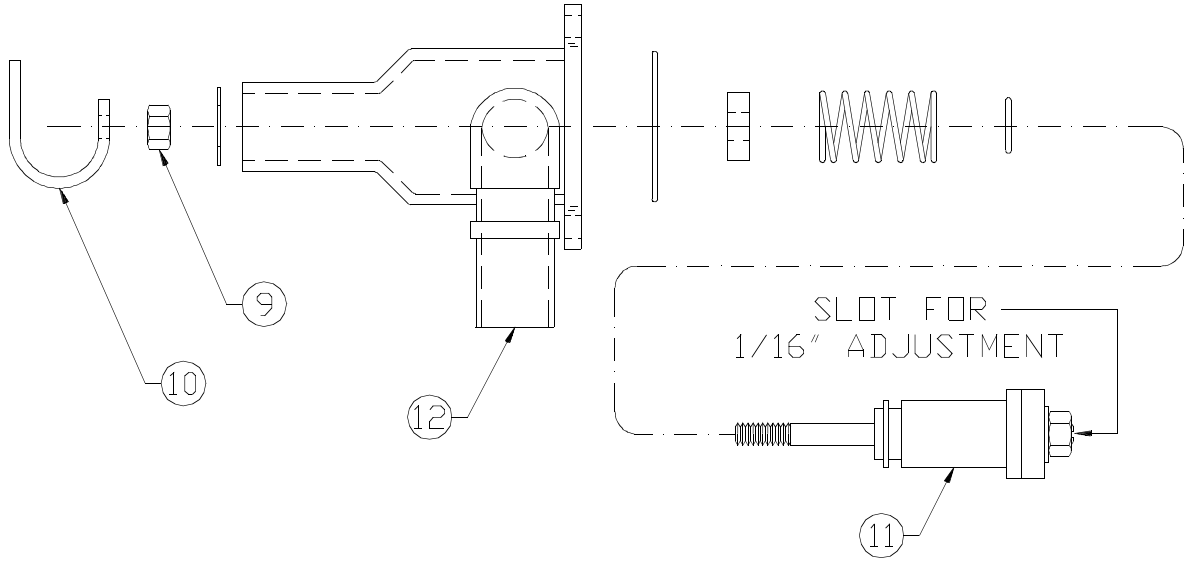
Note: Be sure flat end of spacer (11) is against piston (12).

8. Mount valve assembly back on cooking well with the allen screws.



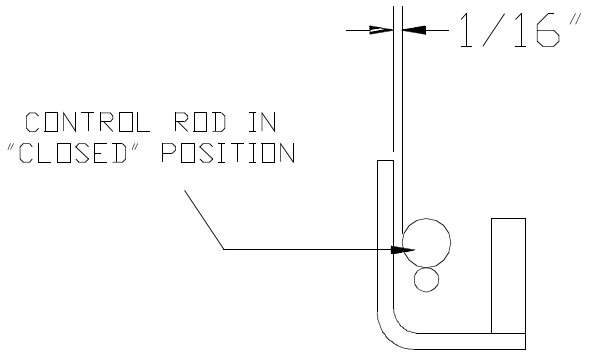
9. With control arm in the “CLOSED” position, a distance of 1/16” should be maintained between the control yoke (8) and control rod. While locking nut (7) is loose, adjust distance in the pressure port located on inside top of the cooking well. Using a screwdriver, turn stem assembly (9) either clockwise or counterclockwise to obtain this distance.
10. Tighten locking nut.

Repair:
Effective: SE8D101763 and SG8D100830



Use repair kit #15279.

1. Remove two allen screws which attach the valve assembly to the cooking well.
2. Remove valve from the unit.
3. Loosen locking nut (9) then remove valve control yoke (10) from the stem assembly (11).
4. Remove entire stem assembly from the housing (12) by pushing on threaded end of the stem assembly.
5. Remove all components from the stem assembly (11).
6. Clean then dry all metal components, not replaced, with hot water and a mild detergent.
7. Install new parts from the repair kit. Lubricate all O-rings and contacting surfaces with olive oil.
8. Mount valve assembly back on cooking well with the allen screws.

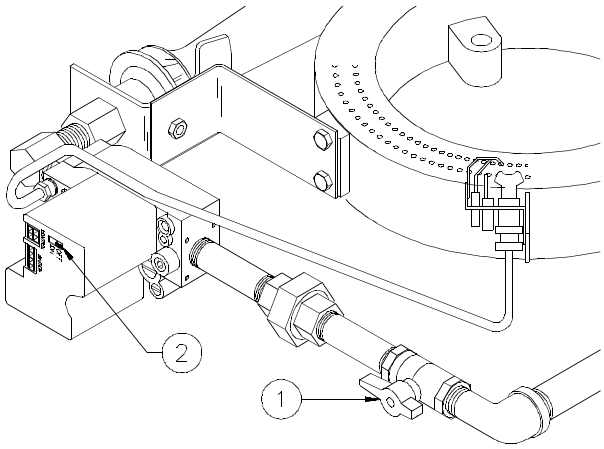


9. With control arm in the "CLOSED" position, a distance of 1/16" should be maintained between the control yoke (10) and control rod. While locking nut (9) is loose, adjust distance in the pressure port located on inside top of the cooking well. Using a screwdriver, turn stem assembly (11) either clockwise or counterclockwise to obtain this distance.
10. Tighten locking nut.

9 - 1800GH MAIN BURNER SYSTEM

MODEL 1800GH LIGHTING INSTRUCTIONS

Start Up:



1. Turn cook/filter switch OFF.
2. See OIL LEVEL in the operation manual.
3. Turn gas shut-off valve (1) ON. Wait five minutes before turning gas control ON.
4. Slide switch (2) on top of gas valve to ON.

Note: The Model 1800GH has an intermittent pilot burner. This type of pilot lights when the controller calls for heat and goes out when the controller is not calling for heat.

5. To light pilot and main burners, turn cook/filter switch to COOK.

Shut Down:

1. Turn cook/filter switch OFF.
2. Turn gas valve switch (2) OFF.
3. Turn gas shut-off valve (1) OFF.

GAS CONVERSION

To convert from one type of gas to another, five components must be changed: gas valve, pilot burner orifice, main burner orifice and two specification plates. Notify The Broaster Company Service Department of a conversion in writing.

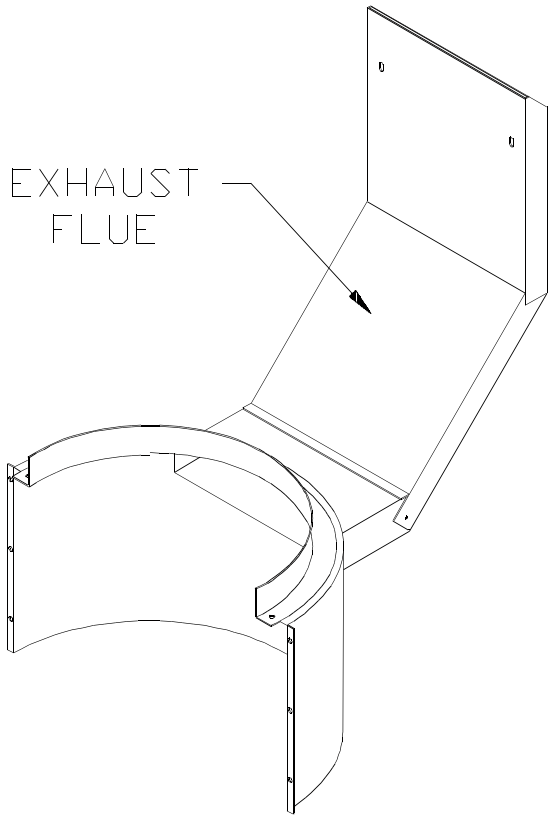
Main Burner Orifice Sizes Up To 2000 Feet Above Sea Level:

Natural Gas: #24
Propane: #41

HIGH ALTITUDE

Standard gas units operate up to 2000 feet above sea level. Installations above this require a special main burner orifice. Contact The Broaster Company for orifice sizing.

VENTILATION



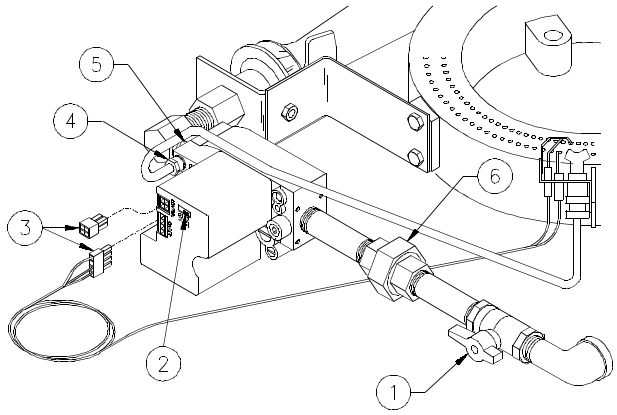
- Never modify exhaust flue! Back pressures from added extensions can cause high ambient temperatures near the controls.

- Make sure unit is correctly ventilated. Restrictions, drafts or other adverse conditions might affect proper operation of the burner and combustion assemblies.

GAS VALVE

Regulates gas supply. The gas valve has a two position switch: OFF to stop all gas flow, and ON allows gas flow to pilot and main burners as needed. Adjustment for gas pressure and gas flow to pilot burner are also found on the valve.

Replacement:



1. Turn cook/filter switch, manual gas shut off valve (1) and switch (2) OFF.

2. Turn main gas supply OFF.

3. Disconnect main electric supply.

4. Remove condensate pan and front panel.

5. Disconnect gas valve wire harnesses (3).

6. Loosen fitting (4) that mounts pilot burner gas supply line to gas valve.

7. Loosen brass union nut (5).

8. Loosen pipe union (6).

9. Remove piping from gas valve.

Continued:

WARNING: Be sure pilot burner gas supply line is fully installed into gas valve fitting during installation. If not, a gas leak may be the result.

10. Install in reverse order. Use gas pipe sealer on pipe threads. Check all gas connections and pipes with a soap and water solution. Bubbles indicate a gas leak.

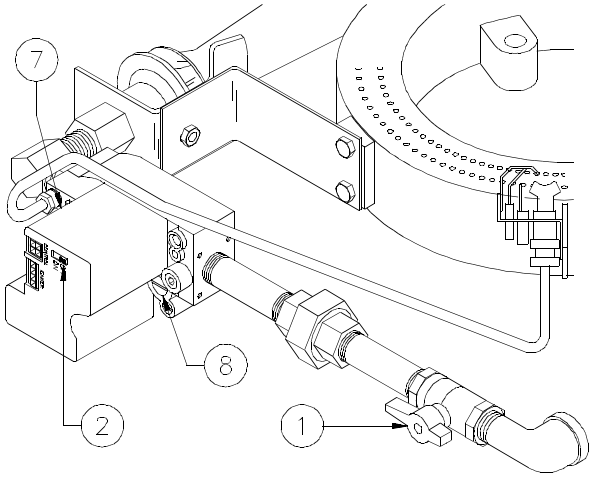
FLAME ADJUSTMENTS

Gas Pressure Adjustment:

Always check gas pressure after a new gas valve installation. Check pressure when other gas equipment is also operating. This will ensure adequate pressure during peak operating times.

There is a pressure tap in output side of the gas valve for manometer hook-up. Correct output gas pressures, in Water Column, are:

Natural Gas: 3.5" W.C.
Propane Gas: 10.0" W.C.



1. Turn cook/filter switch, manual gas shut off valve (1) and switch (2) OFF.

2. Remove pressure tap (7) on gas valve.

3. Install manometer.

4. Turn gas shut off valve (1) ON.

5. Light pilot see MODEL 1800GH LIGHTING INSTRUCTIONS. Turn gas valve switch (2) ON.

CAUTION: Check cooking oil level before turning cook/filter switch to COOK.

6. Turn cook/filter switch to COOK.

7. Remove regulator adjustment cover (8). Adjust pressure when main burner is on.

8. Turn cook/filter switch, manual gas shut off valve (1) and switch (2) OFF.

9. Remove manometer. Replace pressure tap plug. Use gas pipe sealer on threads.

10. Turn manual gas shut off valve (1) ON.

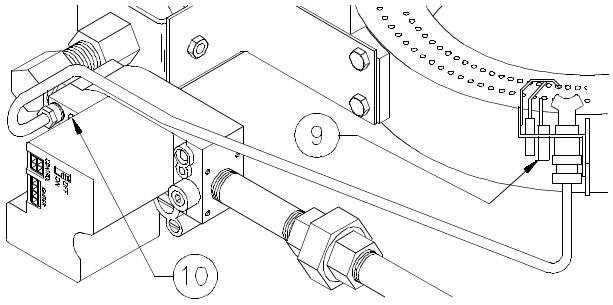
11. Slide gas valve switch (2) ON.

12. Turn cook/filter switch to COOK.

13. Check pressure tap with a soap and water solution when main burner is on. Bubbles indicate a gas leak.

Pilot Burner Flame Adjustment:

Pilot burner flame must surround sensor (9).



1. Remove screw (10).

2. Adjust flame and replace screw.

Main Burner Flame:

Flame must be blue and sit on the burner surface. During normal operation, a slight "whoosing" sound may be heard when burner shuts off. If you cannot adjust the flame correctly check the following:

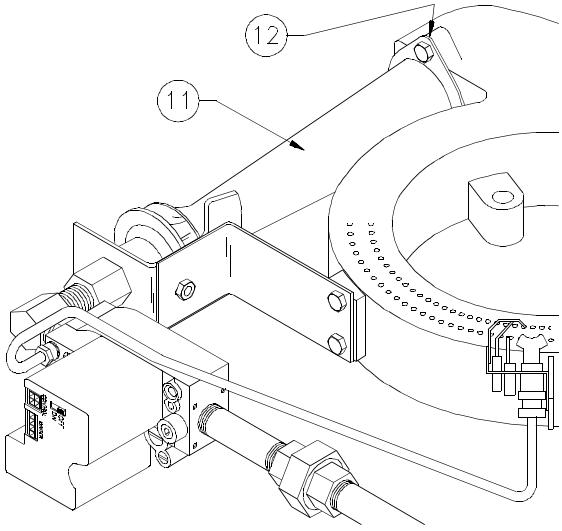
1. Air shutter adjustment. See AIR SHUTTER Adjustment.

2. Centered main burner orifice. After installing a new gas valve or piping, brackets can shift causing gas not to travel down center of the venturi. A bad air/gas mixture is the result.

3. Drafts on floor can affect combustion. Drafts can be caused by open doors, fans and ventilation systems. See VENTILATION.

4. Incorrect ventilation can affect combustion. See VENTILATION.

5. Gas pressure is a main factor for good operation. Be sure correct water column is present. See Gas Pressure Adjustment under FLAME ADJUSTMENTS.



6. Loose venturi (11) or bad gasket (12) can affect combustion. Tighten or replace gasket.

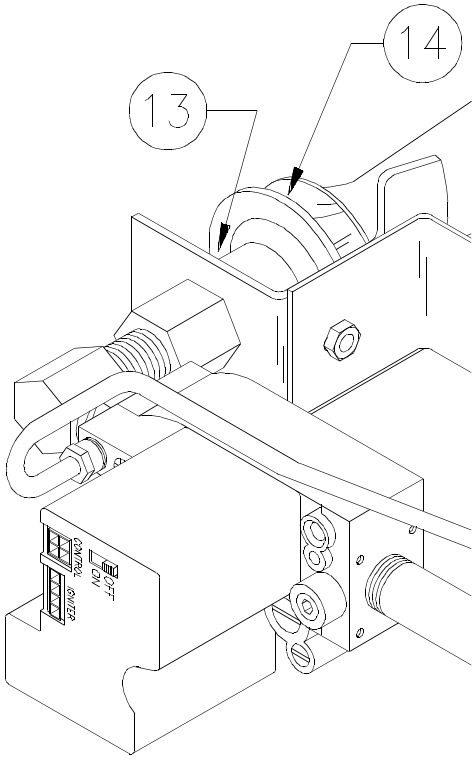
AIR SHUTTER

Maintains air/gas mixture for good combustion. Start with a 1/4" gap after installing a new gas valve or piping.

Adjustment will be necessary if main burner flame is mostly orange or yellow. If flame is out of adjustment, check combustion chamber and flue for soot build-up.

WARNING: If soot is present, DO NOT operate unit until all soot is removed and correction made. Soot is black and powdery to the touch. See COMBUSTION CHAMBER.

Adjustment:



1. Loosen locknut (13) which locks air shutter.

2. Screw shutter (14) in or out to obtain a blue flame. Flame should start burning slightly above main burner.

3. Tighten locknut.

COMBUSTION CHAMBER

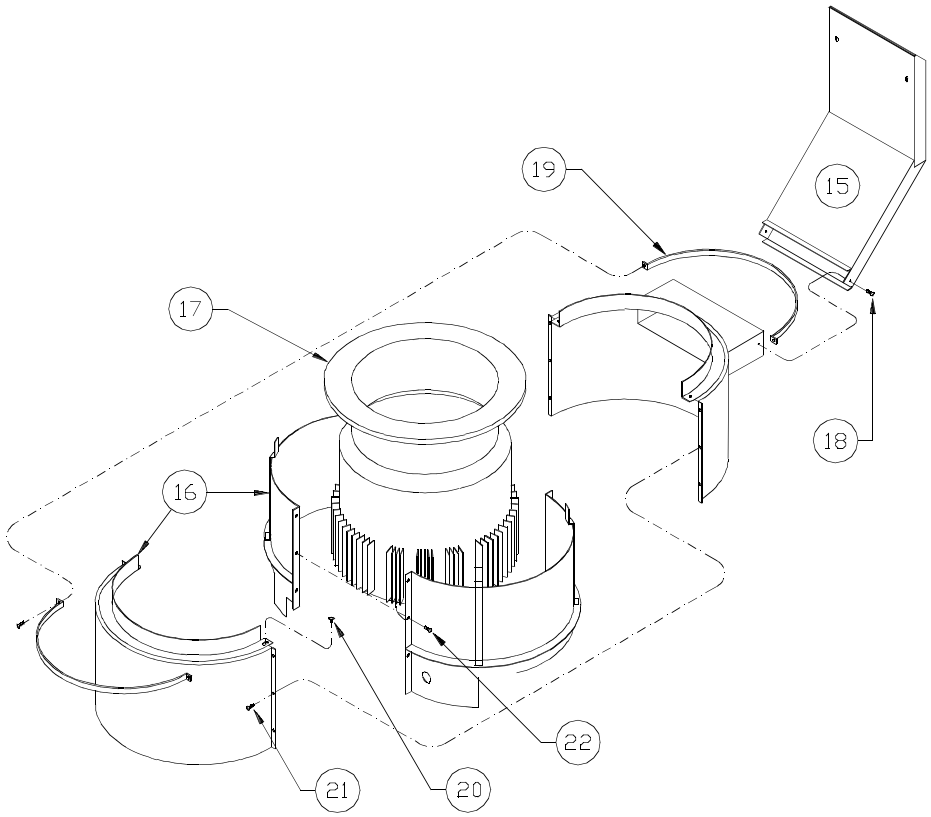
Combustion chamber directs heat from main burner flame across fins on cooking well and out the exhaust flue (15). If main burner flame is not adjusted correctly, soot deposits can form on the combustion chamber (16), exhaust flue (15) and cooking well (17). Soot is identified as black and powdery to the touch.

WARNING: If soot is present, DO NOT operate unit until all soot is removed and corrections made.

WARNING: Allow combustion chamber parts to cool before servicing. Hot metal may cause serious burns.

Cleaning:

1. Turn cook/filter switch, gas valve switch and manual gas shut off valve OFF.
2. Turn main gas supply OFF.
3. Disconnect main electric supply.
4. Remove condensate pan.
5. Remove left and right hand side panels.
6. Remove exhaust flue mounting screws (18) from combustion chamber. Remove upper mounting nuts inside upper flue opening and remove flue (15).
7. Remove outer wall clamp (19).
8. Remove screw (20) on top of outer wall weldments.
9. Remove screws (21) on both sides of outer walls and remove.
10. Remove screws (22) on both sides of inner jackets and remove.
11. Clean exhaust flue, inner jacket, outer wall and cooking well.
12. Assemble in reverse order.



MAIN BURNER ORIFICE

Replacement:

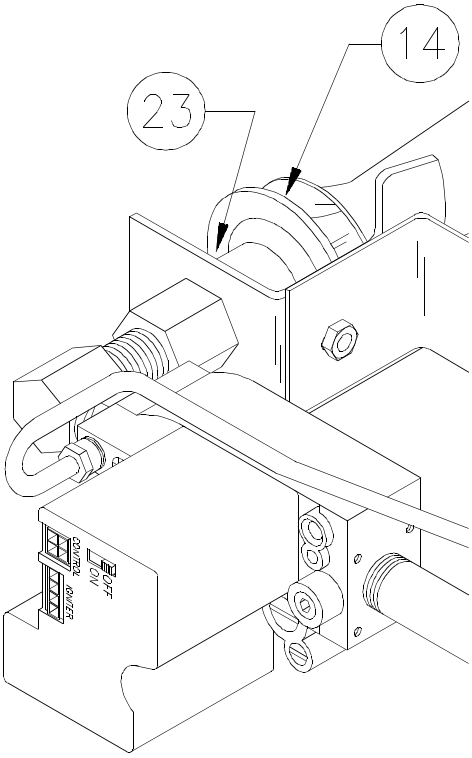
1. Turn cook/filter switch, gas valve switch and manual gas shut off valve OFF.

2. Turn main gas supply OFF.

3. Disconnect main electric supply.

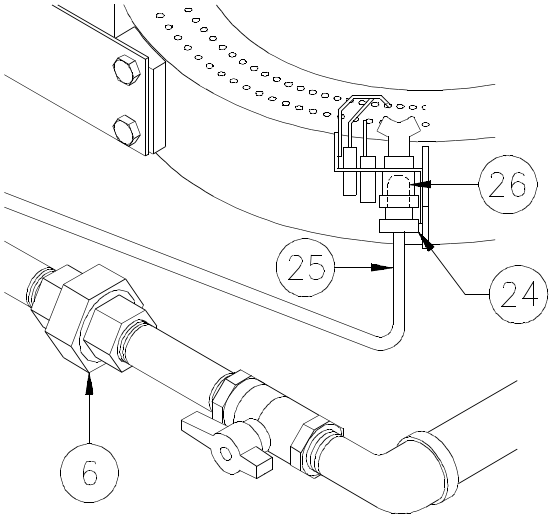
4. Remove condensate pan.

5. Facing the front of unit, remove left hand side panel if possible.



6. Loosen two locknuts (23) behind air shutter (14).

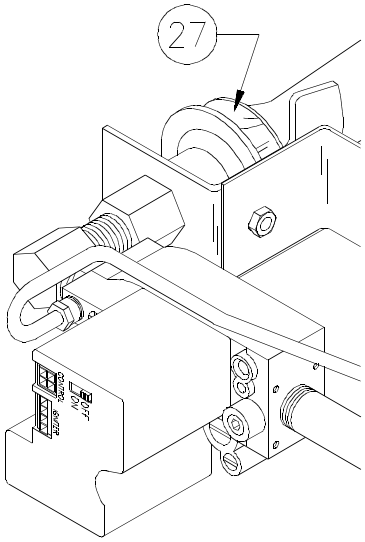
7. Screw air shutter and locknuts away from gas valve as far as possible.



8. Loosen brass fitting (24) and pull 1/4" gas supply line (25), brass fitting and pilot burner orifice (26) free of burner.

9. Loosen pipe union (6).

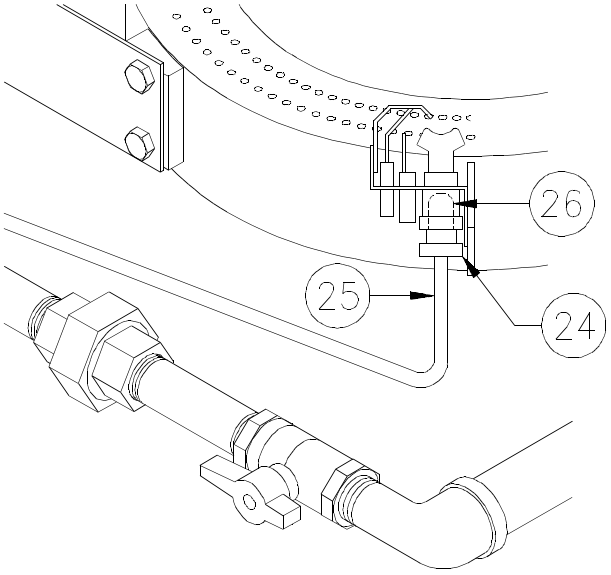
10. While pulling on gas valve, loosen air shutter and locknuts until they can be removed.



11. Remove main burner orifice (27).

12. Assemble in reverse order. Adjust air shutter. See AIR SHUTTER. Check all connections and pipes with a soap and water solution. Bubbles indicate a gas leak.

PILOT BURNER ORIFICE



Orifice (26) is located above brass fitting (24).

Replacement:

1. Remove condensate pan.

2. Turn cook/filter switch, gas valve switch and manual gas shut off valve OFF.

3. Loosen brass fitting (24) from pilot burner.

4. Pull 1/4" gas supply line (25) and brass fitting free of burner. It may be necessary to loosen gas valve side of gas supply line.

5. Remove orifice (26).

6. Install new orifice in reverse order . Check all gas connections with a soap and water solution. Bubbles indicate a gas leak.

10 - DRAIN VALVE AND FILTER SYSTEM

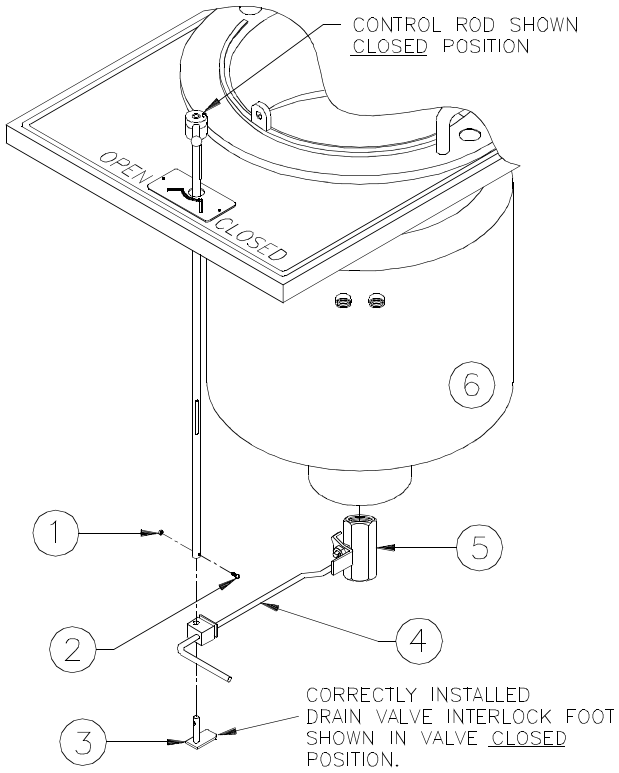
DRAIN VALVE

Used to drain oil from cooking well into filter pan or container made for handling hot oil.

DANGER: Never drain oil unless cook/filter switch is OFF and pressure regulating valve is OPEN. Hot oil could spray out under pressure causing serious burns.

Replacement:

1. Disconnect main electric supply.
2. Remove filter pan from under the unit. Drain cooking oil from cooking well into a container made for handling hot oil.
3. Remove nut (1), screw (2) and inter-lock (3).
4. Remove nut mounting handle (4) to the drain valve (5).
5. Unscrew drain valve from the cooking well (6).
6. Assemble in reverse order using teflon tape on cooking well threads.



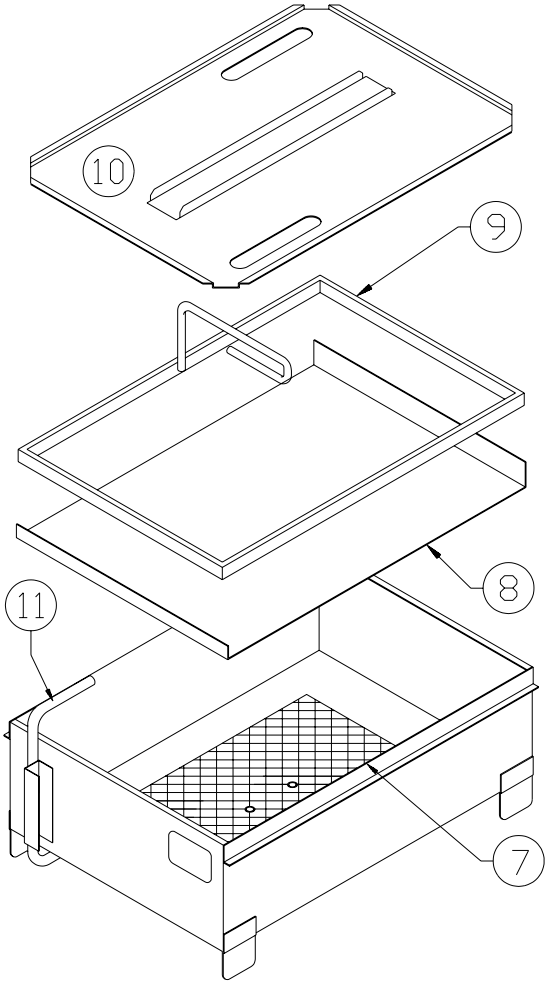
FILTER PAN

See Operation Manual for detailed filtering procedures.

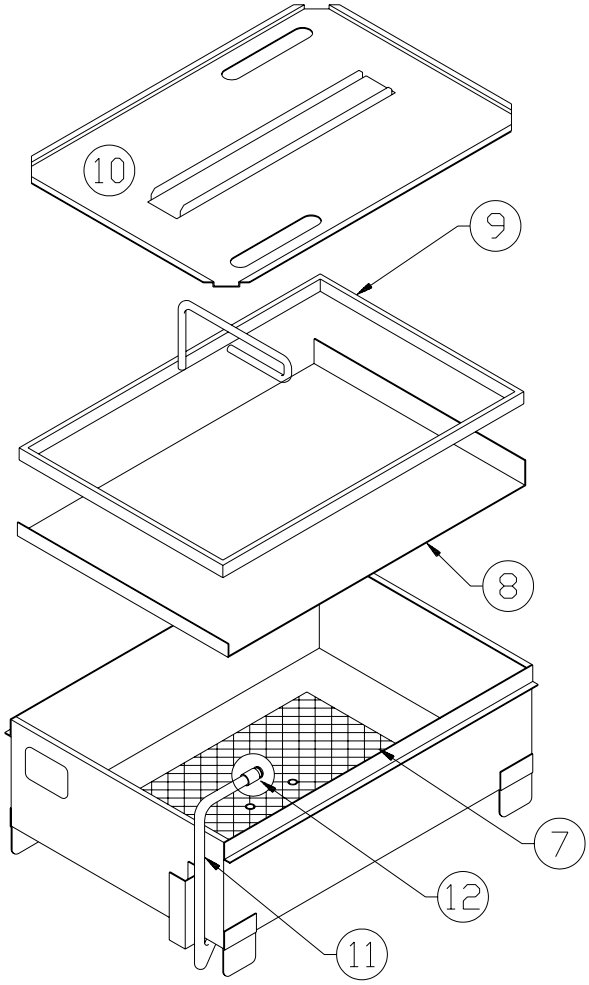
Filter Pan Assembly:

WARNING: DO NOT use the filter pan to transport hot oil. Hot oil could splash causing serious burns.

1600:



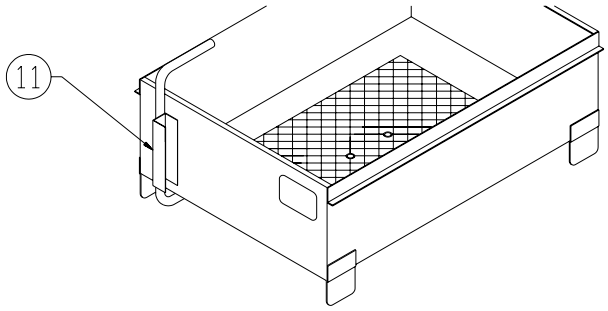
1800:



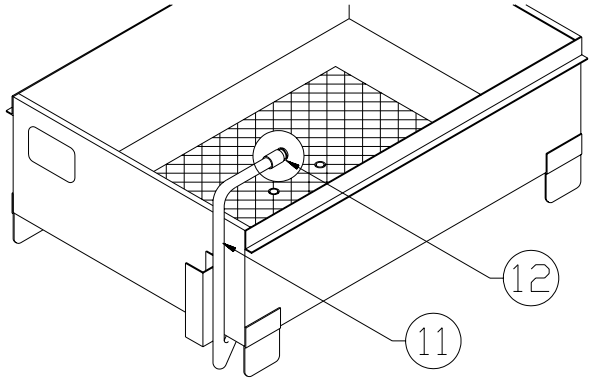
Be sure filter components are assembled correctly. Correct order is filter screen (7) on bottom of filter pan, filter paper (8), filter hold-down (9), one cup (1600) or two cups (1800) of Broaster® filtering compound on top of filter paper and cover (10) on filter pan.

Preventive Maintenance:

1600:



1800:



1. Use a clean cloth or paper towel to wipe crumbs from filter hold down and the filter pan interior before replacing filter paper. This will help prevent crumbs from causing a poor seal or entering the riser line (11) and pump.

WARNING: Rags or papers containing cooking oil can catch fire if exposed to heat. Laundering will not remove the oil. Dispose of all oil-soiled papers and rags in a trash container that is in a ventilated area away from all cooking equipment or other heat sources such as direct sunlight.

2. Be sure the O-ring (12) (1600: located in suction line) is in good condition, lubricated with cooking oil and installed correctly.

CHECK VALVE

Prevents cooking oil from draining into the filter pan from cooking well.

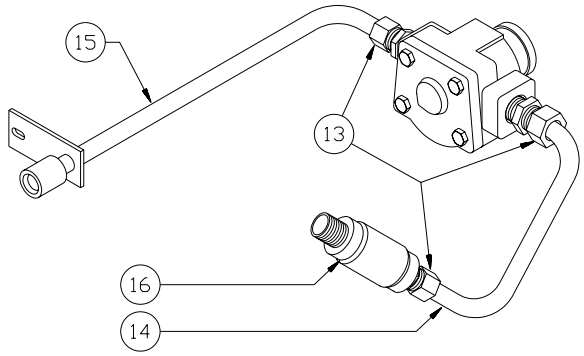
Replacement:

1. Disconnect main electric power supply.

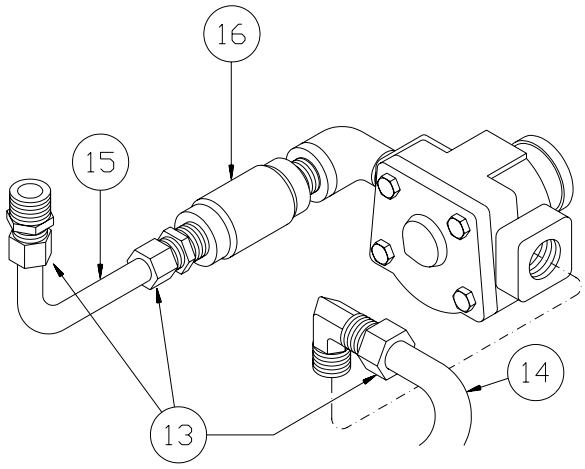
2. Drain cooking oil from the cooking well and into a container made for handling hot oil then close the drain valve.

3. Remove left hand side panel (1800).

1600:



1800:



4. Loosen fitting (13), motor mounting bolts, remove pipe (14 and 15) (1800: slide motor back to remove pipe).

Continued:

5. Unscrew valve (16).

6. Remove any fittings from the valve.

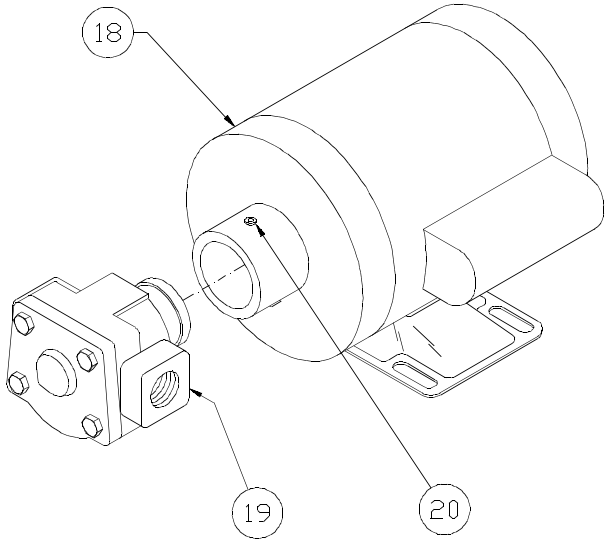
7. Install in reverse order using teflon tape on pipe threads.

Installation hint:

1. When installing a fitting or pipe nipple into the valve, be sure to place wrench on the same side of valve into which fitting or nipple is being installed. DO NOT tighten across the valve! Distortion of valve seat could occur.

2. When installing compression fittings on tubing, tighten nut finger tight then turn 1-1/4 turns more.

MOTOR



Motor (18) turns pump (19) which returns cooking oil from filter pan to the cooking well.

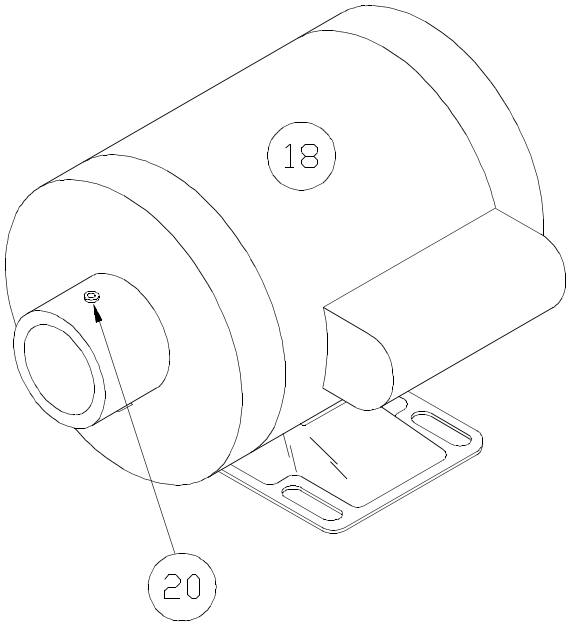
WARNING: Turn cook/filter switch OFF before resetting manual reset thermal overload.

Motor has a manual reset thermal overload. If overload trips, push red reset button on back after motor has cooled .

Replacement:

1. Disconnect main electric power supply.

2. Disconnect conduit wires and conduit from the motor.



3. Loosen three set screws (20) in neck of motor (18) which hold pump in place.

4. Remove motor mounting bolts and remove motor.

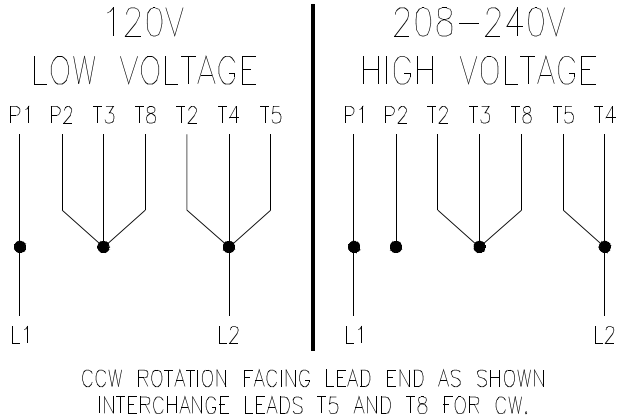
5. Install in reverse order.

Installation Hints:

1. Be sure pump is fully installed into the motor neck before tightening set screws.

2. Tighten three set screws in neck a little at a time, in sequence, around neck until tight. This will prevent any unnecessary binding on shafts of the pump and motor.

3. Be sure motor is wired for correct voltage. Motor wires are numbered for 120 or 208-240V connection .



Note: The dots represent wire nuts.

Note:
1600 - Rotates clockwise
1800 - Rotates counterclockwise

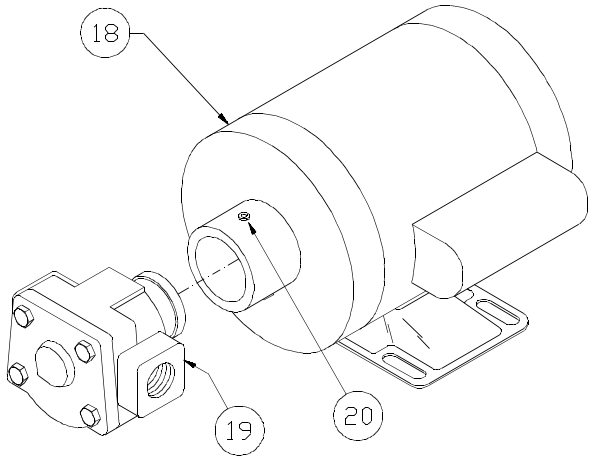
PUMP

Pumps cooking oil from filter pan to the cooking well.

Removal:

1. Disconnect main electric power supply.

2. Drain cooking oil from cooking well into a container made for handling hot oil and close drain valve.



3. Remove piping from pump (19).

4. Loosen three set screws (20) in neck of motor (18) which hold pump in place. Remove pump.

5. Assemble in reverse order using teflon tape on pipe threads.

Installation Hints:

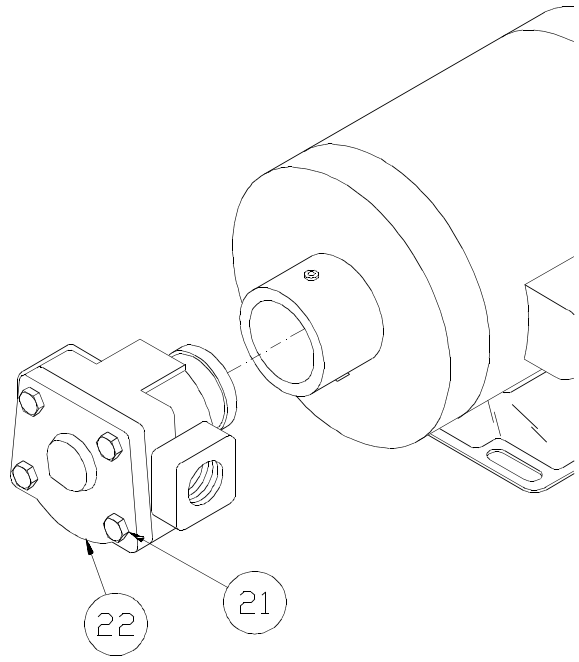
1. Loosen motor mounting bolts to help install piping.

2. See MOTOR Installation Hints.

Pump Cleaning:

Cleaning will be necessary if pump is seized and tripping thermal overload on the motor.

1. See PUMP Removal. Remove pump.



2. Remove four bolts (21) and cover (22).

3. Remove interior gears.

4. Clean gears and covers.

5. Replace O-ring and shaft seal if necessary.

6. Install in reverse order using teflon tape on pipe threads.

Reassembly Hints:

1. Pour olive oil or cooking oil on gears and inside front cover bearing where gear shaft is installed. Turn gears by hand for good oil coverage.

2. Be sure cover O-ring is in place before tightening bolts.

11 - TROUBLESHOOTING

Note: Check all wire connections before replacing any part.

ELECTRICAL TIPS

COMPLAINT	CAUSE	REMEDY
POWER ON light not illuminated	1. Hi-limit trippe d 2. Faulty light 3. Faulty cook/filter switch	1. Reset or replac e 2. Replace 3. Replace
Timer will not time	1. Controller in program mode 2. Pressure regulating valve OPEN 3. Microswitch faulty or out of adjustment 4. Faulty cook/filter switch 5. Faulty hi-limi t	1. Exit program mod e 2. CLOSE 3. Replace or adjus t 4. Replace 5. Replace
HEAT ON light not illuminated	1. Controller in program mode 2. Faulty light or controller 3. Faulty cook/filter switch 4. Faulty hi-limi t 5. Faulty temperature control (1600 mechanical)	1. Exit program mod e 2. Replace controller 3. Replace 4. Replace 5. Replace
Hi-limit will not reset	1. Cooking oil temperature too high 2. Faulty hi-limit	1. Allow oil to cool approxi-mately 100 ?F 2. Replace
Heating element(s) won't heat (1600/1800E)	1. Controller in program mode 2. Faulty element(s) 3. Faulty contactor 4. Faulty cook/filter switch 5. Faulty hi-limit (1600/1800E)	1. Exit program mod e 2. Replace 3. Replace 4. Replace 5. Replace
Cooking oil temperature too hot or too cold	1. Controller in program mode 2. Controller needs calibrating 3. Faulty contactor 4. Faulty controller 5. Faulty gas valve 6. Faulty temperature sensor probe	

CONTROLLER TIPS (SOLID STATE)

COMPLAINT	CAUSE	REMEDY
Display reads FAIL	1. Faulty controller	1. Replace
Display reads HI	1. Faulty gas valve 2. Faulty contactor	1. Replace 2. Replace
Display reads PROBE	1. Wire polarity reversed 2. Faulty temperature sensor probe	1. Rewire 2. Replace
Display reads CHEC	1. Gas valve OFF (1800GH) 2. Low gas pressure (1800GH) 3. Poor air/gas mix (1800GH) 4. Main burner not on (1800GH) 5. Loose gas valve wire harness (1800GH) 6. Faulty flame sensor (1800GH) 7. Faulty gas valve (1800GH) 8. Faulty contactor (1600/1800E) 9. Faulty heating element(s) (1600/1800E) 10. Open or faulty wall fuse 11. Pilot does not light	1. Turn ON 2. Check pressure 3. Adjust air shutter 4. See 5, 6, 7,8 and 11 5. Check connections 6. Replace 7. Replace 8. Replace 9. Replace 10. Check wall fuse or circuit breaker 11. See GAS TIPS (1800GH)

GAS TIPS (1800GH)

COMPLAINT	CAUSE	REMEDY
Pilot burner won't light	1. Gas valve OFF 2. Air in gas line 3. Gas shut-off valve OFF 4. Pilot burner flame too small 5. Gas pressure too high	1. Turn ON 2. Tighten 3. Replace 4. Adjust flame 5. Install pressure regulator
Main burner will not turn on	1. Gas valve not ON 2. Controller in program mode 3. No electrical power to the gas valve 4. Faulty gas valve	1. Turn On 2. Exit program mode 3. Check circuit 4. Replace

COVER AND YOKE TIPS

COMPLAINT	CAUSE	REMEDY
Cover hard to CLOSE	1. O-ring groove and O-ring dry or dirty 2. Hard O-ring 3. Teflon bearing out of adjustment or worn 4. Cover not centered 5. Lifter box dirty or dry	1. Clean and lubricate 2. Replace 3. Adjust or replace 4. Center 5. Clean and lubricate
Cover won't OPEN **WARNING:** Never use force to OPEN cover	1. O-ring groove and O-ring dry or dirty 2. Pressure not released 3. Pressure regulating valve out of adjustment	1. Clean and lubricate 2. OPEN pressure regulating valve 3. Adjust valve
Cover hard to move from front of the unit to the rear	1. Yoke bearings and slide rod dirty	1. Clean
O-ring breaking **CAUTION: DO NOT** rest basket on top flange of cooking well. Damage to area in contact with o-ring can cause leaking under pressure or 0-ring failure.	1. Dirty O-ring groove 2. Nicks in cooking well or cover	1. Clean 2. Remove nicks

PRESSURE SYSTEM TIPS

DANGER: DO NOT attempt to tighten, repair or replace any fitting, line or component when there is pressure in the cooking well. Hot oil could spray out under pressure causing serious burns.

COMPLAINT	CAUSE	REMEDY
No pressure	1. Pressure regulating valve OPEN	1. CLOSE
	2. Pressure regulating valve dirty or blocked open	2. Use repair kit
	3. Leaks around cover O-ring	3. Replace O-ring and center cover
	4. Cover cold	4. Pre-heat cover
	5. Low cooking oil temperature	5. Check programmed temperature
	6. Faulty safety relief valve	6. Replace
	7. Pressure valve out of adjustment	7. Adjust
	8. Faulty pressure gauge	8. Replace
Excess pressure	1. Restriction in exhaust system	1. Locate, remove then clean
	2. Overloaded with fresh product	2. Decrease load
	3. Faulty pressure gauge	3. Replace

PRODUCT TIPS

COMPLAINT	CAUSE	REMEDY
Product too light	1. Low cooking oil temperature 2. Wrong coating 3. No coating 4. Not done 5. Food basket overloaded	1. Check cook temperature 2. Check procedures 3. Check procedures 4. Increase cook time 5. Decrease product load
Product too dark	1. High cooking oil temperature 2. Product cooked too long 3. Wrong coating 4. Coated product held in refrigeration too long 5. Dirty cooking oil	1. Check cook temperature 2. Decrease time 3. Check procedures 4. Rinse then recoat 5. Filter or replace
Product not done	1. Low cooking oil temperature 2. Food basket overloaded 3. Cook time too short 4. Frozen product	1. Check cook temperature 2. Decrease product load 3. Increase cook time 4. Increase cook time
No flavor	1. Improper marination	1. Check procedures
White spots on product	1. Product stuck together while loading 2. Food basket overloaded	1. Float food basket while loading 2. Decrease load size
Dark spots on product	1. Dirty oil	1. Filter or replace

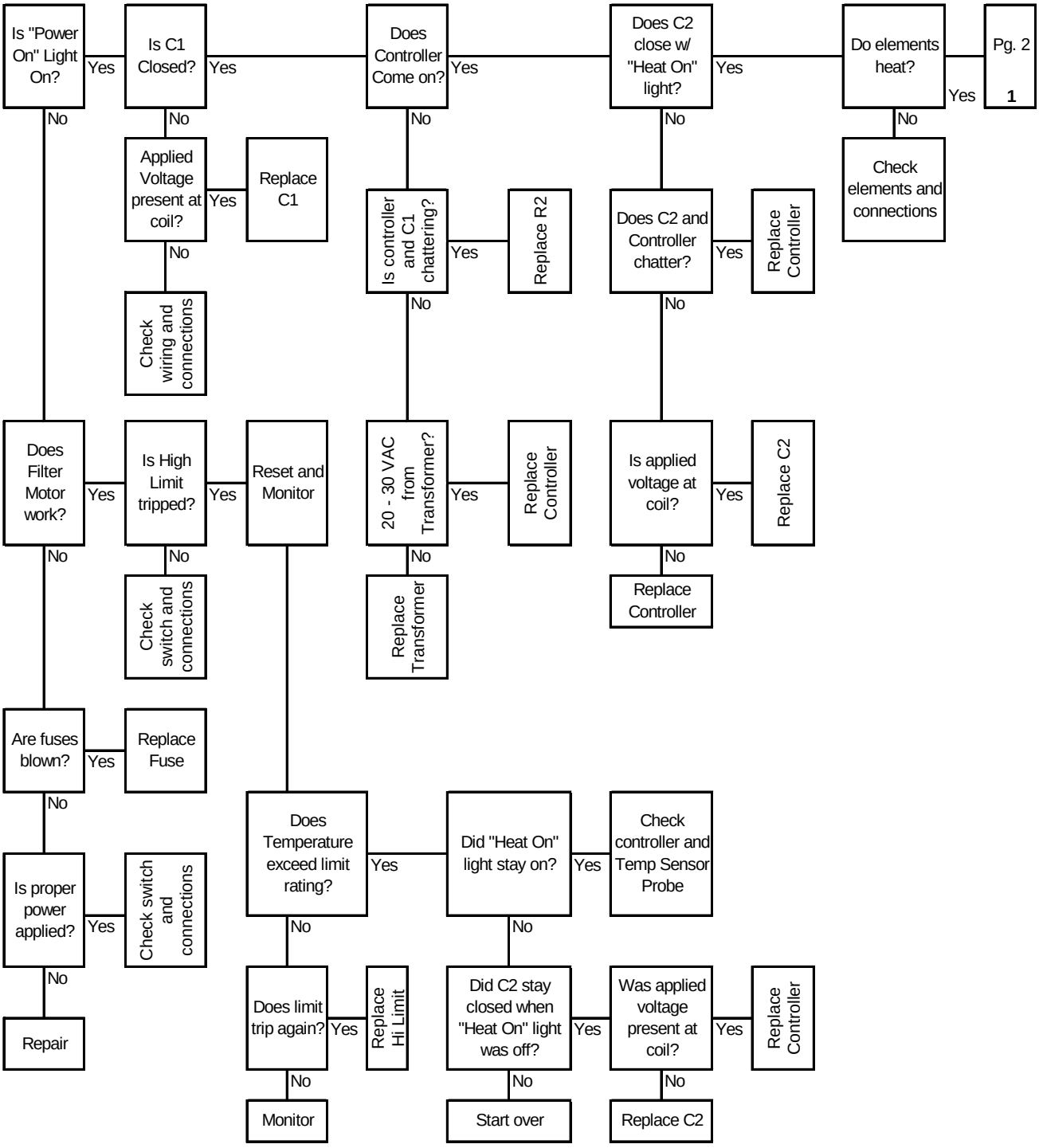
Frozen IQF Chicken:

COMPLAINT	CAUSE	REMEDY
Product too light	1. Low oil temperature 2. Not done 3. Food basket overloaded	1. Check cook temperature 2. Increase cook time 3. Decrease load
Product too dark	1. High oil temperature 2. Overcooked 3. Oil old 4. Thawed and refrozen	1. Check cook temperature 2. Decrease cook time 3. Change oil 4. Keep product at 0°F or below
Product not done	1. Low oil temperature 2. Food basket overloaded 3. Cook time too short	1. Check cook temperature 2. Decrease load 3. Increase cook time
No flavor	1. Overcooked 2. Old product	1. Check cook time 2. Discard
White spots	1. Product stuck together 2. Food basket overloaded	1. Float basket while loading 2. Decrease load size
Dark spots	1. Dirty oil	1. Filter or replace

FILTERING TIPS

COMPLAINT	CAUSE	REMEDY
Motor will not start **WARNING:** Turn cook/filter switch to OFF position to avoid splashing of oil when motor protector reset button is pushed.	1. Overload tripped 2. Cook/filter switch OFF 3. Open or faulty wall fuse or circuit breaker	1. Wait for overload to cool. Push red motor protector reset button located on rear of motor. 2. Turn to FILTER 3. Check wall fuse or circuit breaker
Motor hums but will not start	1. Solidified shortening in pump 2. Crumbs in pump	1. Turn cook/filter switch OFF. Clean pump. 2. Turn cook/filter switch OFF. Clean pump.
Motor starts but will not pump	1. Filter pan not completely installed 2. O-ring on riser line not installed 3. Solidified shortening in piping or filter pan	1. Firmly push filter pan in 2. See FILTERING 3. Turn cook/filter switch OFF. Contact service person.
Motor starts but will not pump or stops at any level	1. Filter paper or hold down improperly installed 2. Not using enough Broaster® filtering compound	1. See COOKING OIL CARE AND FILTERING 2. Next filtering cycle, make sure proper amount of Broaster® filtering compound is used
Motor starts but stops pumping when oil is level with top of hold down, approximately 1 inch of oil in bottom	1. Filter paper improperly installed or crumbs under filter paper or hold down	1. See COOKING OIL CARE AND FILTERING

1600/1800E Troubleshooting Flow Chart Sheet 1



Controller Alarms

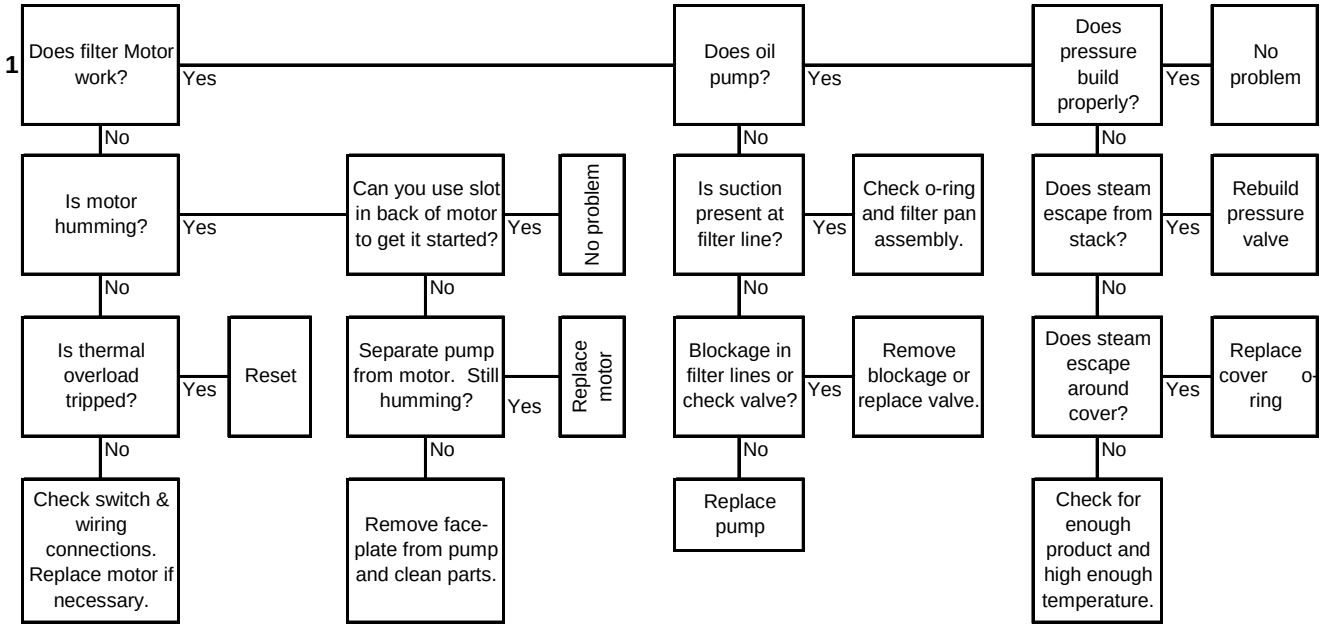
HI: Temperature exceeded 415 degrees. Check actual trmperature, controller, C2.

CHEC: Temperature didn't rise 6 degrees in 3 minutes. Check controller, C2, wiring and connections.

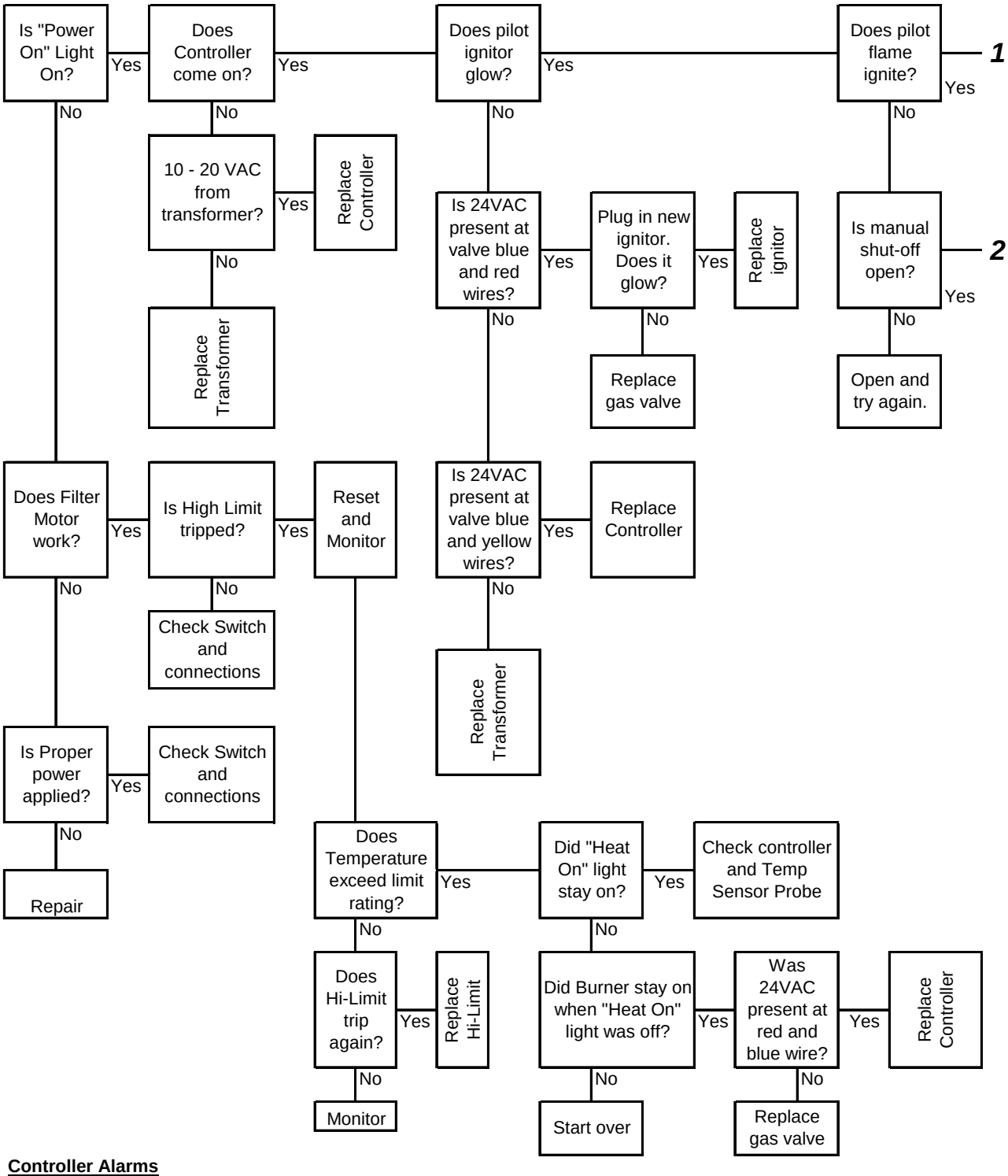
PROB: Problem with temperature sensing. Check controller, probe, speaker.

FAIL: Internal fault detected or temperature fluctuation. Check controller or probe.

1600/1800E Troubleshooting Flow Chart Sheet 2



1800GH Troubleshooting Flow Chart Sheet 1



Controller Alarms

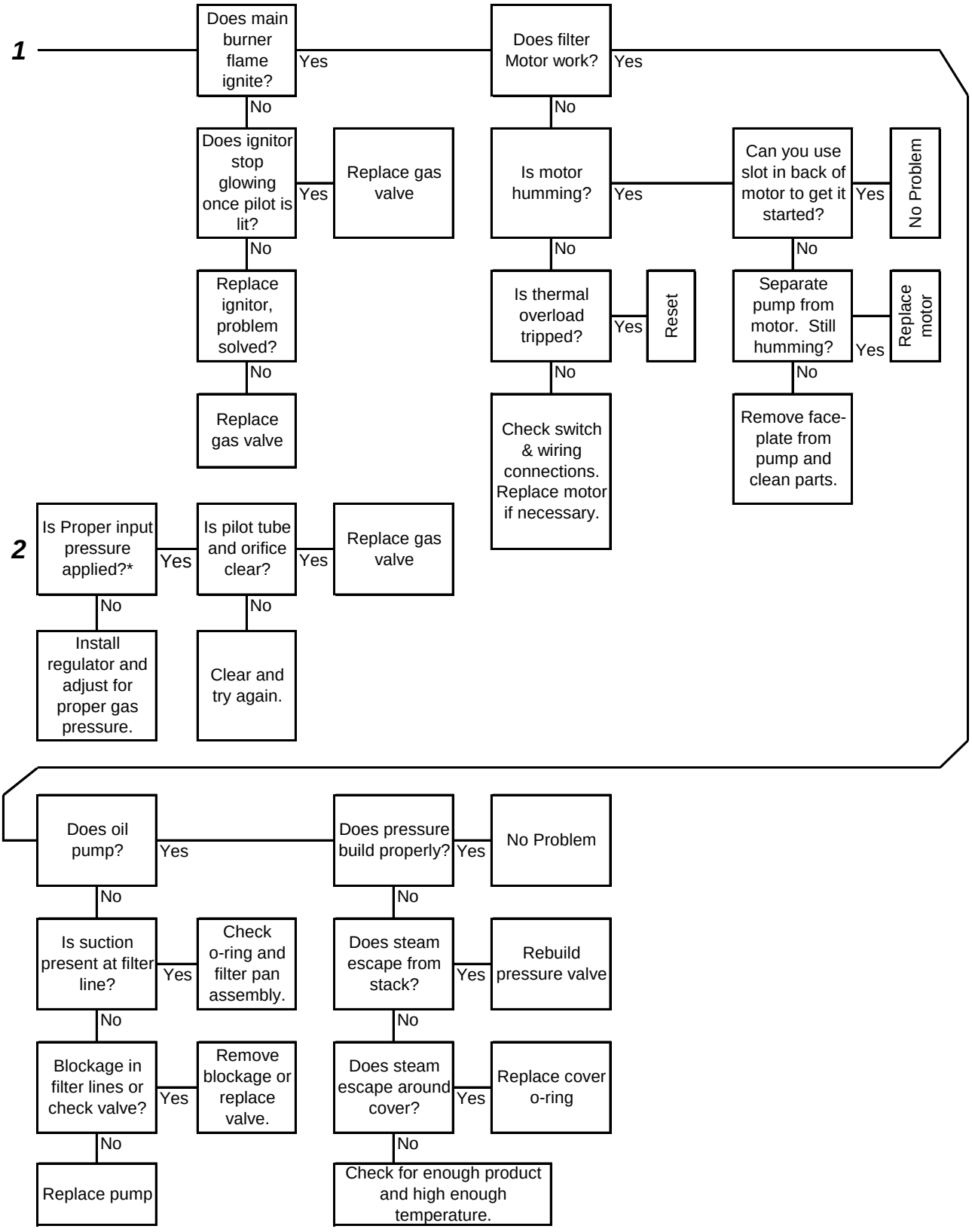
HI: Temperature exceeded 415 degrees. Check actual trmperature, controller, gas valve.

CHEC: Temperature didn't rise 6 degrees in 3 minutes. Check controller, gas valve, wiring and connections.

PROB: Problem with temperature sensing. Check controller, probe, speaker.

FAIL: Internal fault detected or temperature fluctuation. Check controller or probe.

1800GH Troubleshooting Flow Chart Sheet 2



***Proper input gas pressure is below 7"WC for Natural Gas and below 14"WC for LP**

SERVICE NOTES

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